

THE PREDICTION PROJECT



Alyssa A. Goodman

Harvard-Smithsonian Center for Astrophysics & Radcliffe Institute for Advanced Study
@aagie, @PredictionX

PREDICTIONX



on
edX
created by
HarvardX



KARLOS
LIBERONIS



T-Mobile... 4:16 PM 97%

← Via dei Fori Imperiali, 1

Colosseum

4 min 5 min 6 min 4 min

Hotel Duca D'Al... 4 min

Basilica di San Pietro in Vincoli

Domus Aurea

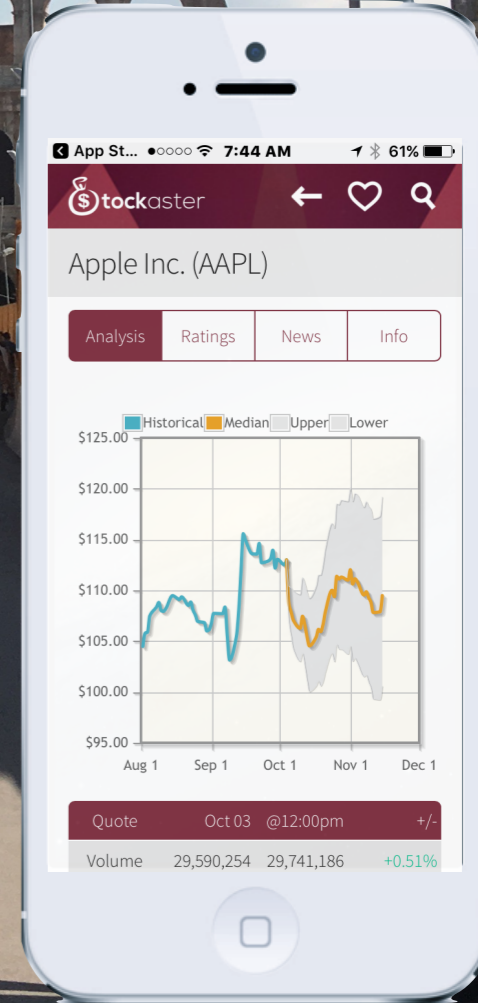
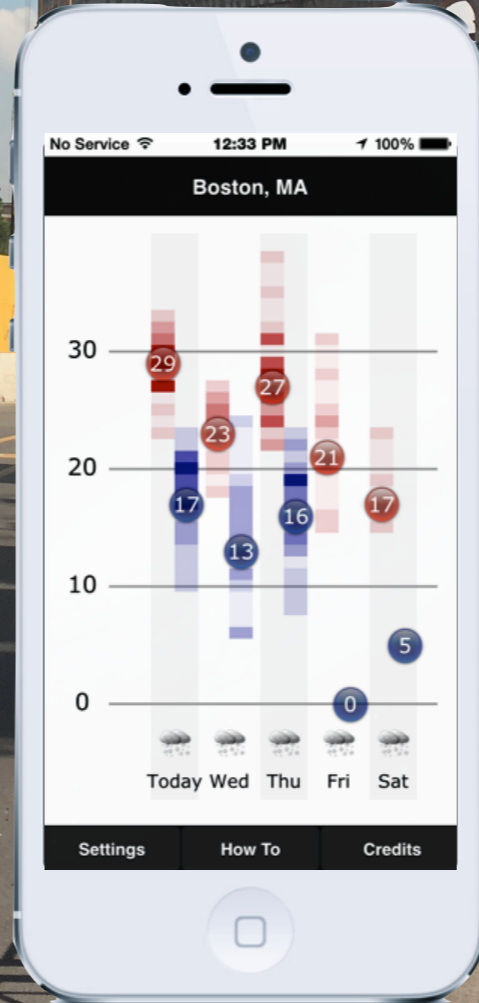
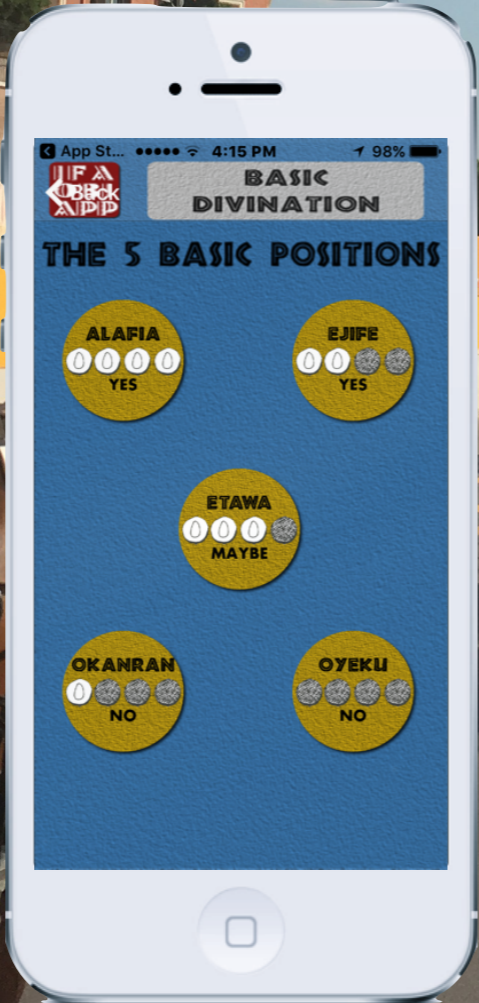
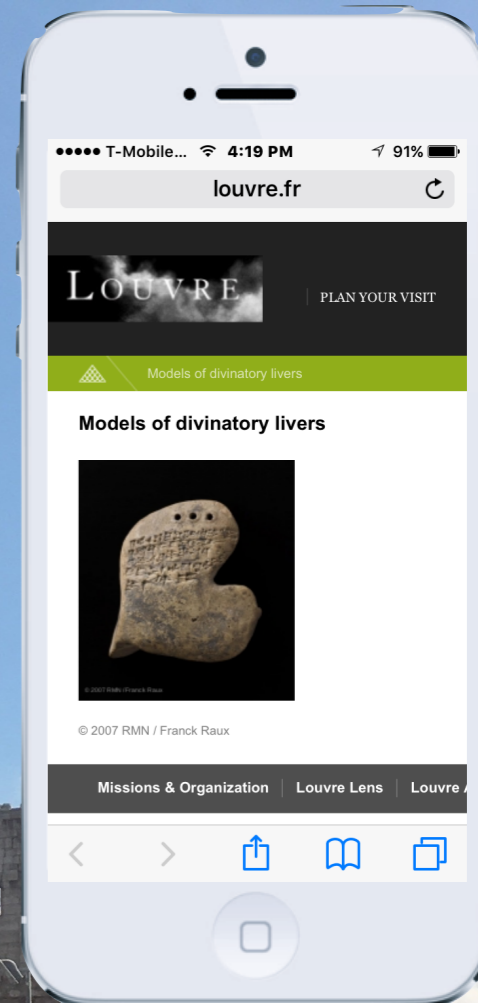
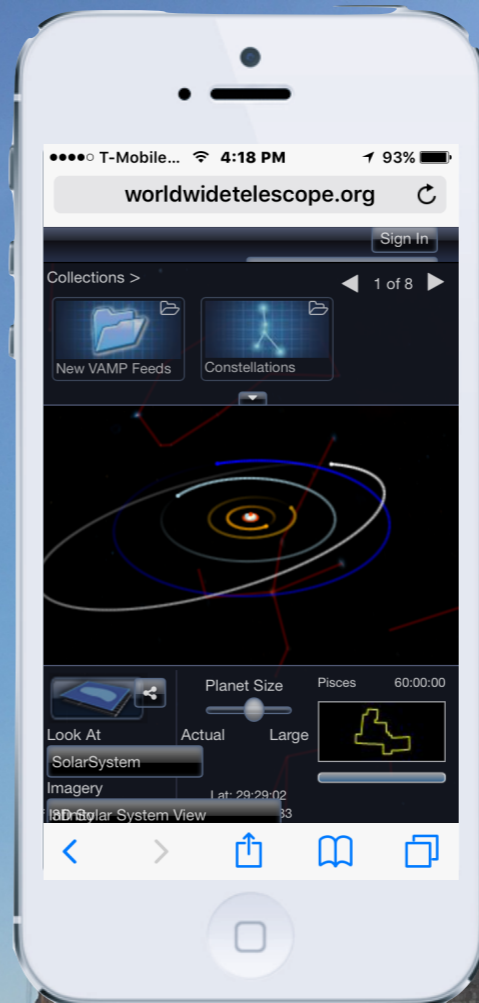
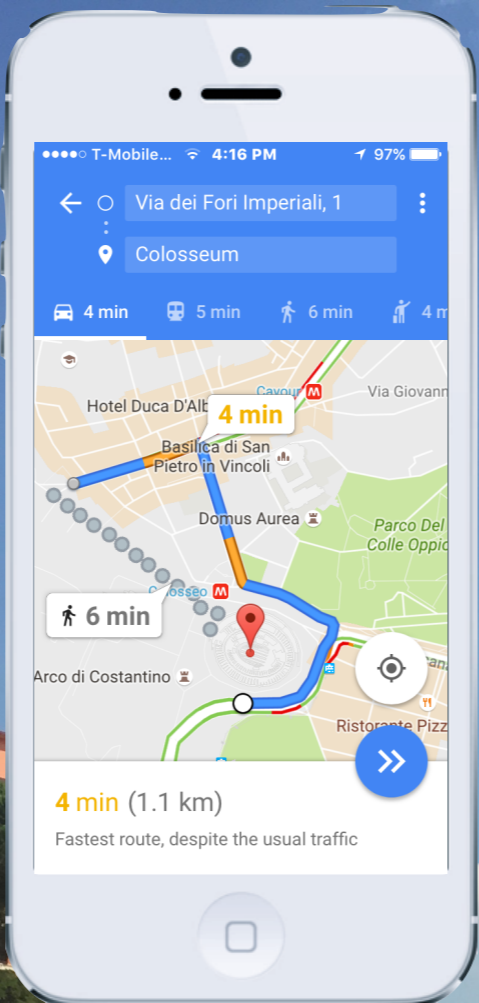
Parco Del Colle Oppio

Arco di Costantino 6 min

Ristorante Pizz

4 min (1.1 km)

Fastest route, despite the usual traffic



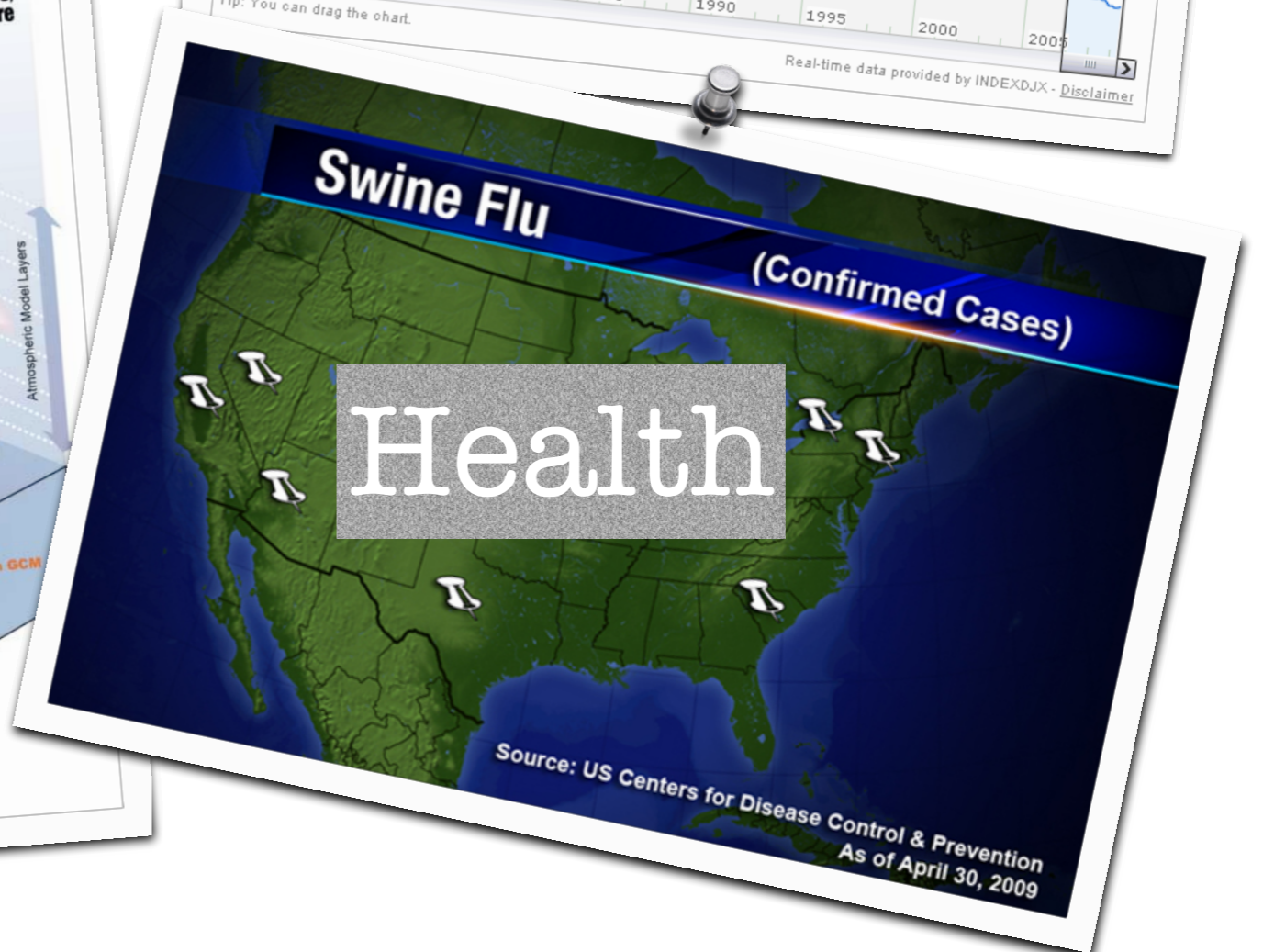
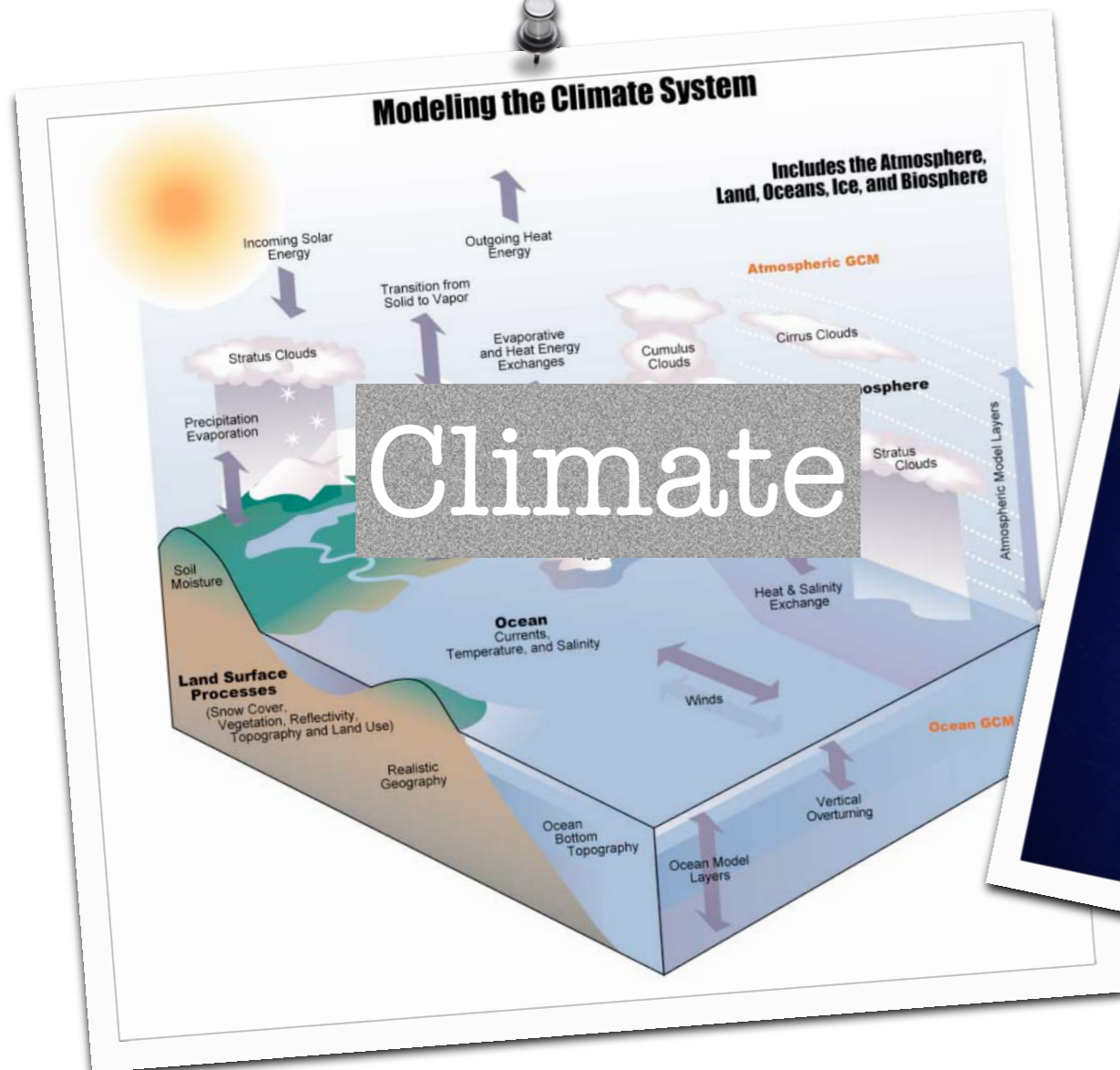


KARLOS
LIBERON

The Past

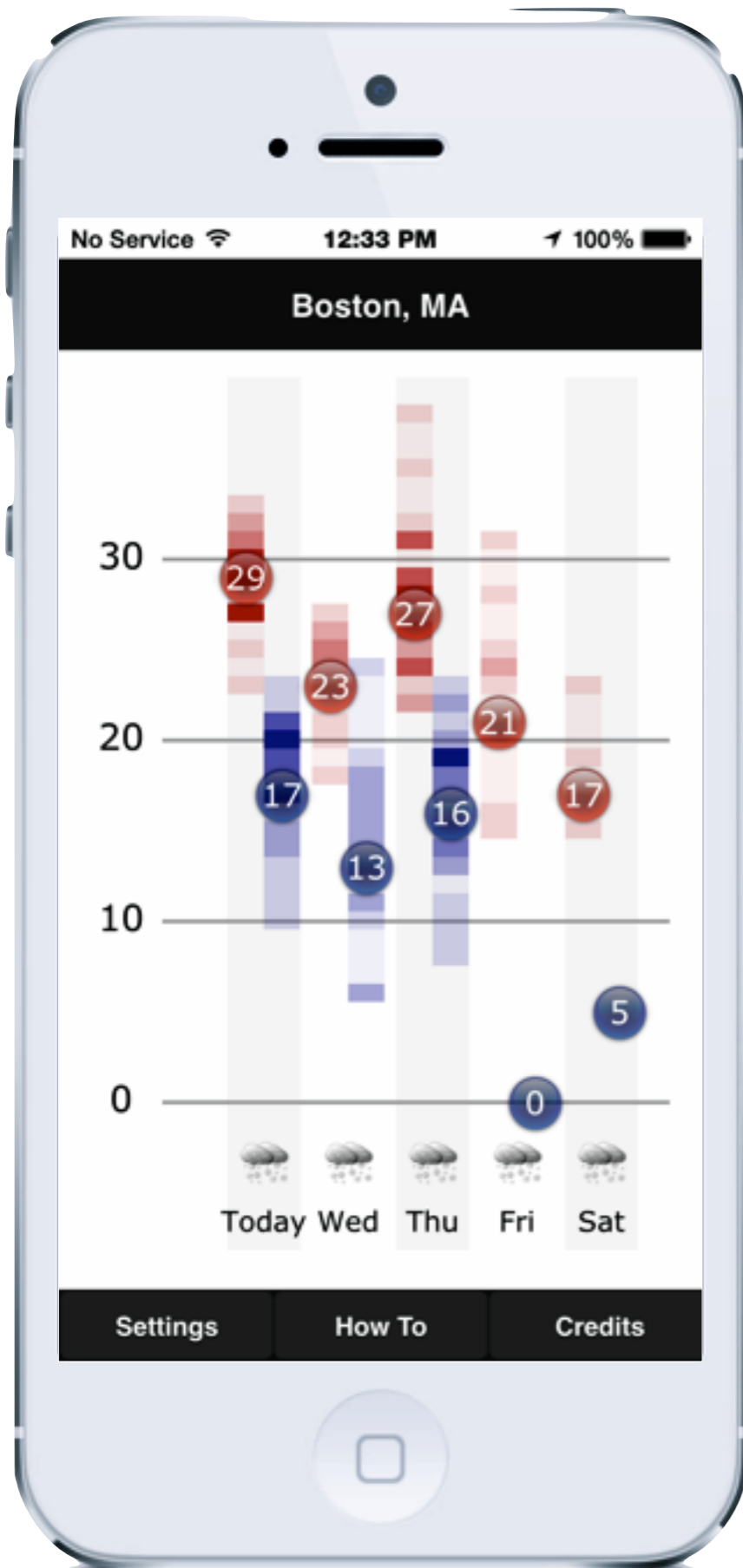
“Uncertainty, v. 2008”

thanks to Annie Valva & WGBH



1	2	3	4	5	6	7	8	9	10	
11	12	13	14	15	16	17	18	19	20	
21	22	23	24	25	26	27	28	29	30	
31	32	<h1 style="text-align: center;">"The Uncertain Future"</h1> <h2 style="text-align: center;">2009</h2> <h3 style="text-align: center;">thanks to Howard Cutler (WGBH)</h3>						38	39	40
41	42	43	44	45	46	47	48	49	50	
51	52	53	54	55	56	57	58	59	60	
61	62	63	64	65	66	67	68	69	70	
71	72	73	74	75	76	77	78	79	80	
81	82	83	84	85	86	87	88	89	90	

“Take a Sweater,” 2012



App Store listing for "Take A Sweater" by Harvard University. The app is available for download. The description includes:

Description
NOTE: Take-A-Sweater currently only has data for Boston, MA. This will be changing with the next release.
This App was created in 2012, for use in the Harvard University General Education course "The Art of Numbers," taught by Prof. Alyssa Goodman. The code was written by Bill Barthelmy of Harvard's Academic Technology Group. Historical data were kindly provided by Forecast/Watch, a product of Intellovations, LLC. Current five-day weather forecast data are provided by NOAA....

takeasweater.com, and "TakeASweater" in the Apple App Store

with thanks to Eric **Floehr** of Forecast Watch and Bill **Barthelmy** of Harvard Academic Technology Group



PREDICTIONX, 2016



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Faculty of Arts and Sciences



RADCLIFFE INSTITUTE
FOR ADVANCED STUDY
HARVARD UNIVERSITY



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HARVARD T.H. CHAN
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Collection of Historical
Scientific Instruments
HARVARD UNIVERSITY



HARVARD
MEDICAL SCHOOL



Harvard
Semitic Museum



HARVARD COLLEGE
Freshman Seminar Program



Harvard Museum of
Natural History

HarvardX

Harvard
Art Museums
Fogg Museum
Busch-Reisinger Museum
Arthur M. Sackler Museum

PREDICTION THE PAST AND PRESENT OF THE FUTURE



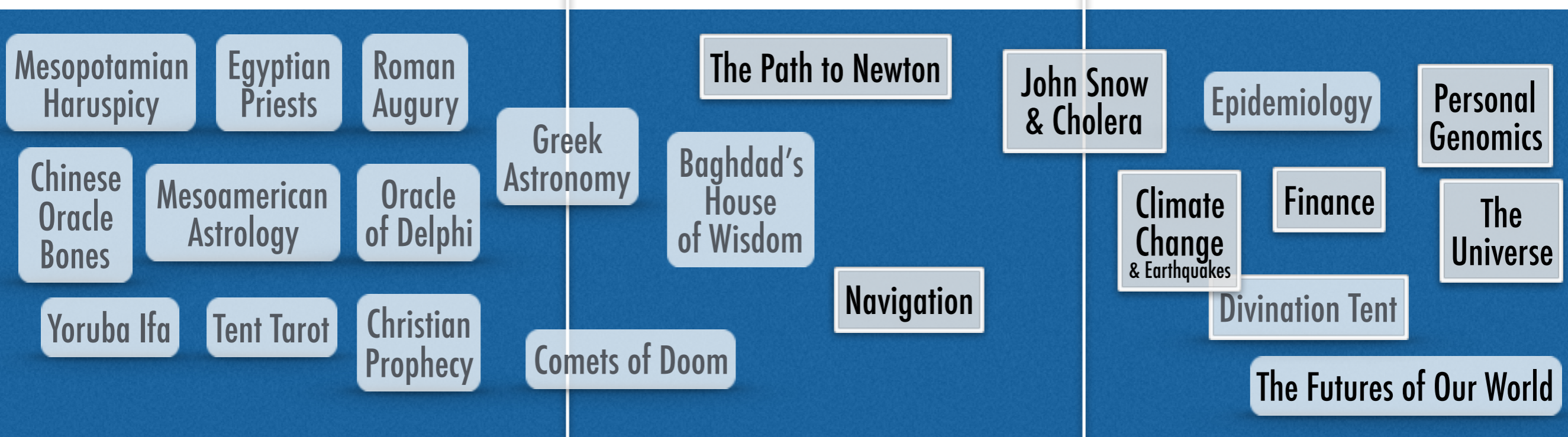
1 Omens, Oracles & Prophecies



2 The Rise of Theory



3 Modern Simulation



TIMELINE TOOL, INTERACTIVE MAPS (EARTH & SKY), ANNOTATION TOOL(S)

Full "Course"/Book



1 Omens, Oracles & Prophecies

"Parts"

3 Modern Simulation

Mesopotamian Haruspicy

Egyptian Priests

Roman Augury

The Path to Newton

John Snow & Cholera

Epidemiology

Personal Genomics

Topics

&

Mini-Courses

Chinese Oracle Bones

Mesoamerican Astrology

Oracle of Delphi

Finance

The Universe

Yoruba Ifa

Tent Tarot

Christian Prophecy

Comets of Doom

Divination Tent

The Futures of Our World

Tech Tools

Systems Framework, "Golden Threads" Pedagogy, Data Collection & Study Design

Pedagogica Views

PREDICTION THE PAST AND PRESENT OF THE FUTURE



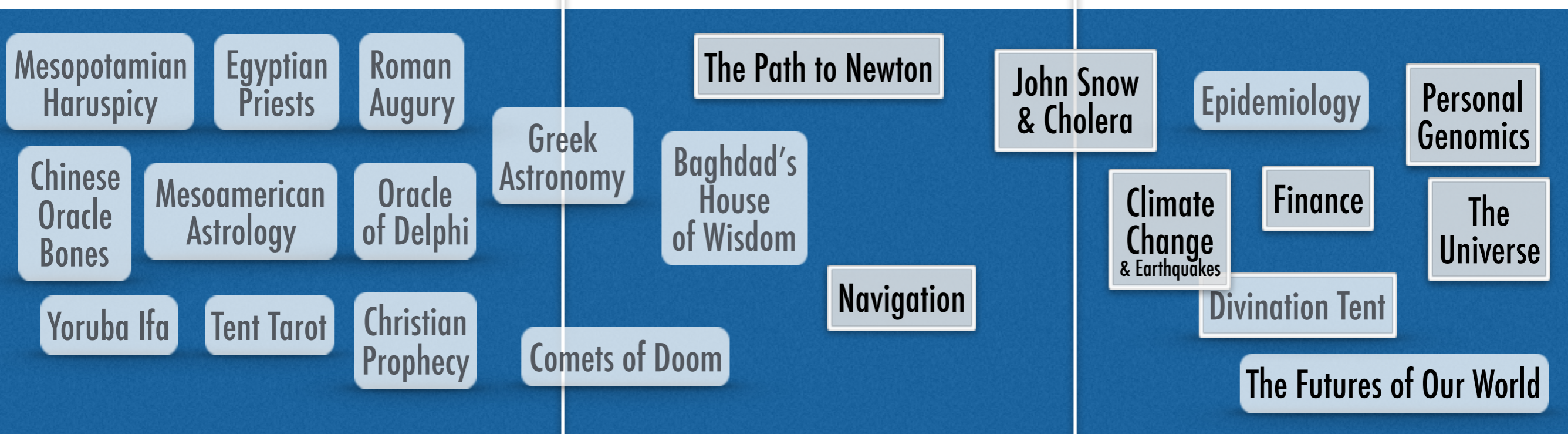
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PREDICTION THE PAST AND PRESENT OF THE FUTURE



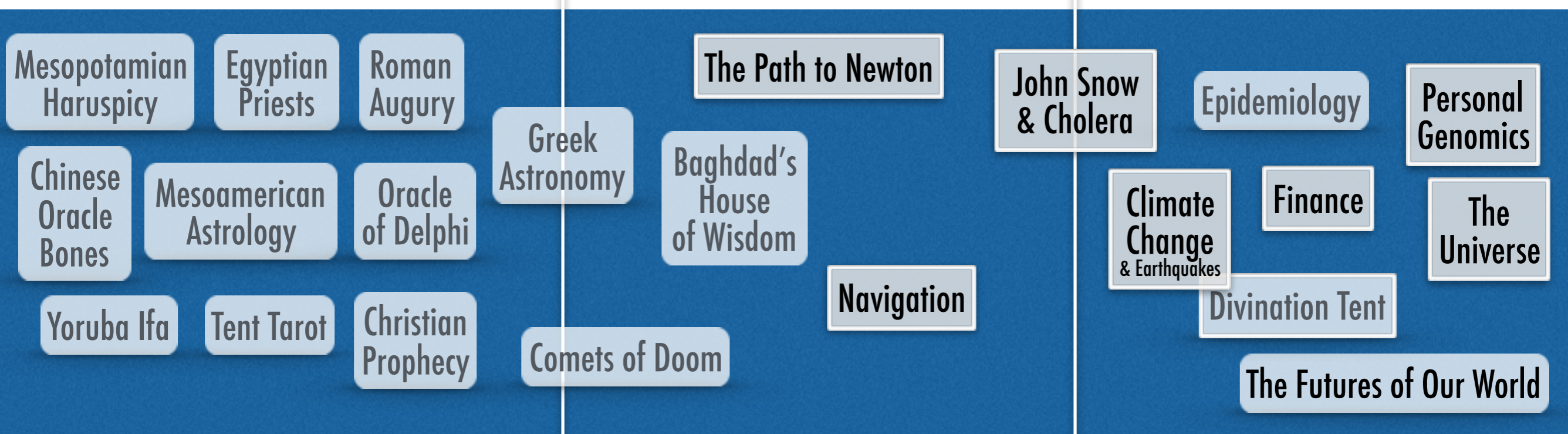
1 Omens, Oracles & Prophecies



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TIMELINE TOOL, INTERACTIVE MAPS (EARTH & SKY), ANNOTATION TOOL(S)

"Mini-Course" John Snow & Cholera

Home Course Discussion Progress Timeline Glossary @PredictionX on Twitter

Support


Welcome to HarvardX's PredictionX!

Mini-Course: John Snow and the Cholera Outbreak of 1854


Course Updates and News

September 12, 2016 Hide


PredictionX: John Snow and the Cholera Outbreak of 1854




[Snow and Cholera](#)



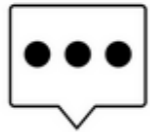
[Expert Conversations](#)




[The Map](#)




[Timeline](#)



[Extra Material](#)

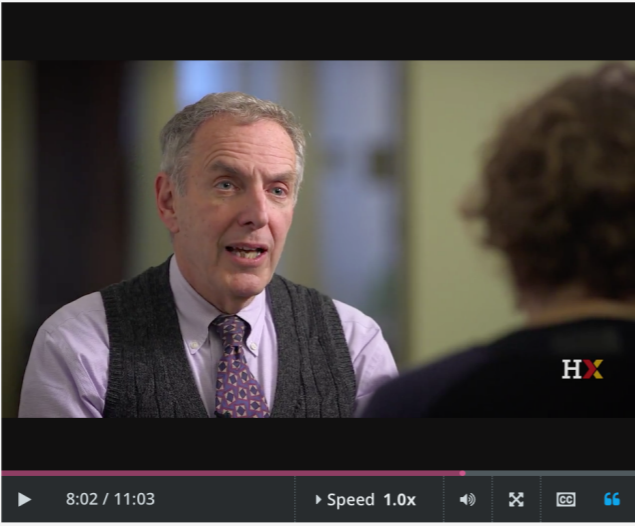


[Assessments](#)



[PredictionX](#)

A Conversation with Experts



8:02 / 11:03 | Speed 1.0x

Transcripts

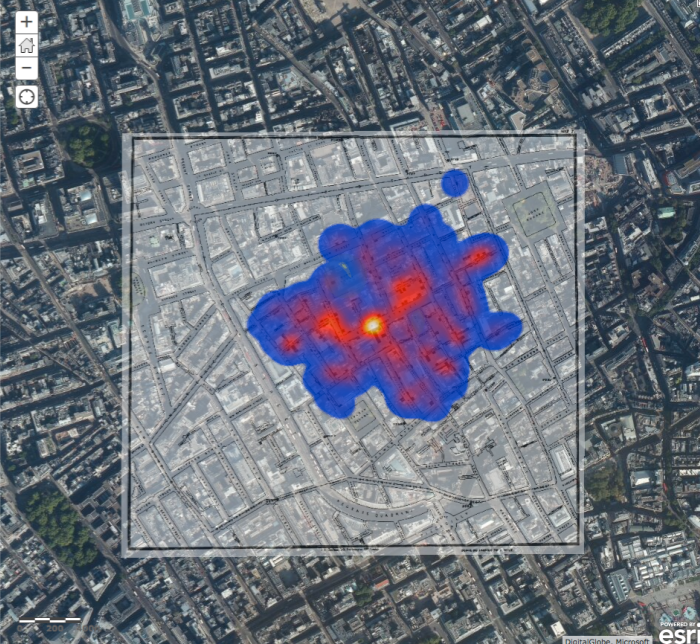
- [Download SubRip \(.srt\) file](#)
- [Download Text \(.txt\) file](#)

ArcGIS - PredictionX: John Snow Maps

Modify Map | Sign In

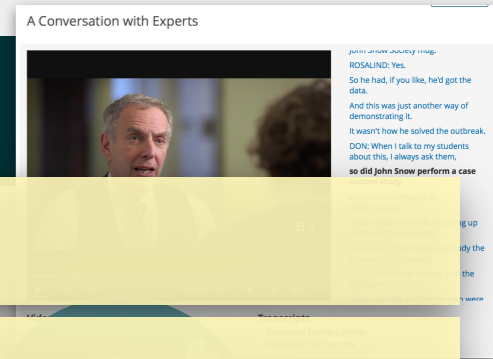
Details | Basemap | Share | Print | Measure | Find address or place

- Workhouse
- Brewery
- JohnSnowCholera - Broad Street Pump
- JohnSnowCholera - Pumps
- JohnSnowCholera - Deaths by Address
- Snow Cholera Points - Heatmap
- John Snow Map - Semi-Transparent
- John Snow's Map
- SnowWaterCompanyMap
- Imagery



featuring Don Goldmann, Alyssa Goodman (host) & Rosalind Stanwell-Smith

Making use of learning #tags



Tech Tools

Pedagogical Views

1. Data collection

2. Study design

3. Study goal

#before vs **#during** vs **#after**
e.g. measure planet positions to predict orbits vs e.g. measure shaking in an earthquake vs e.g. interview lung cancer victims

#hypothesis vs **#empirical**
e.g. cholera is water-borne vs e.g. what could be making people sick with cholera?

#description
To reduce complexity of data collected e.g. represent data with a fitted function

#active vs **#passive**
e.g. by survey vs e.g. by GPS

#time-tracking
e.g. Cohort study, Halley's Comet

#probabilistic prediction
Inherently random (e.g. sports outcomes) or with randomness caused by reducible uncertainty (e.g. climate change)

#study vs **#ad-hoc**
e.g. pre-designed Framingham Nurses' Study vs e.g. mining patient medical records

#comparative
e.g. Case-control: drug treatment vs. non-drug

#deterministic prediction
Using a tested, predictive theory that agrees with observation to within measurement error (e.g. gravity)

Full "Course"/Book



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"Parts"

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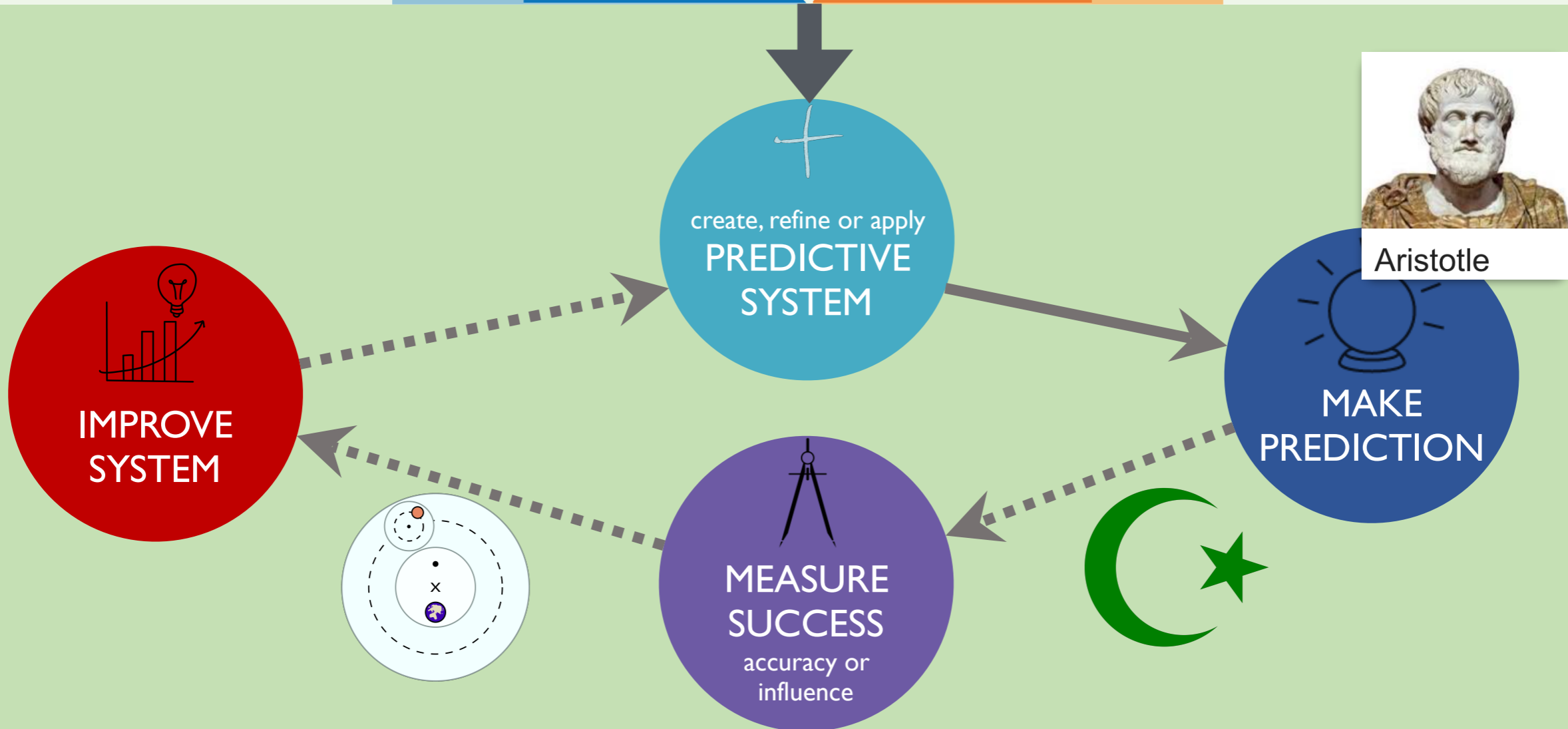
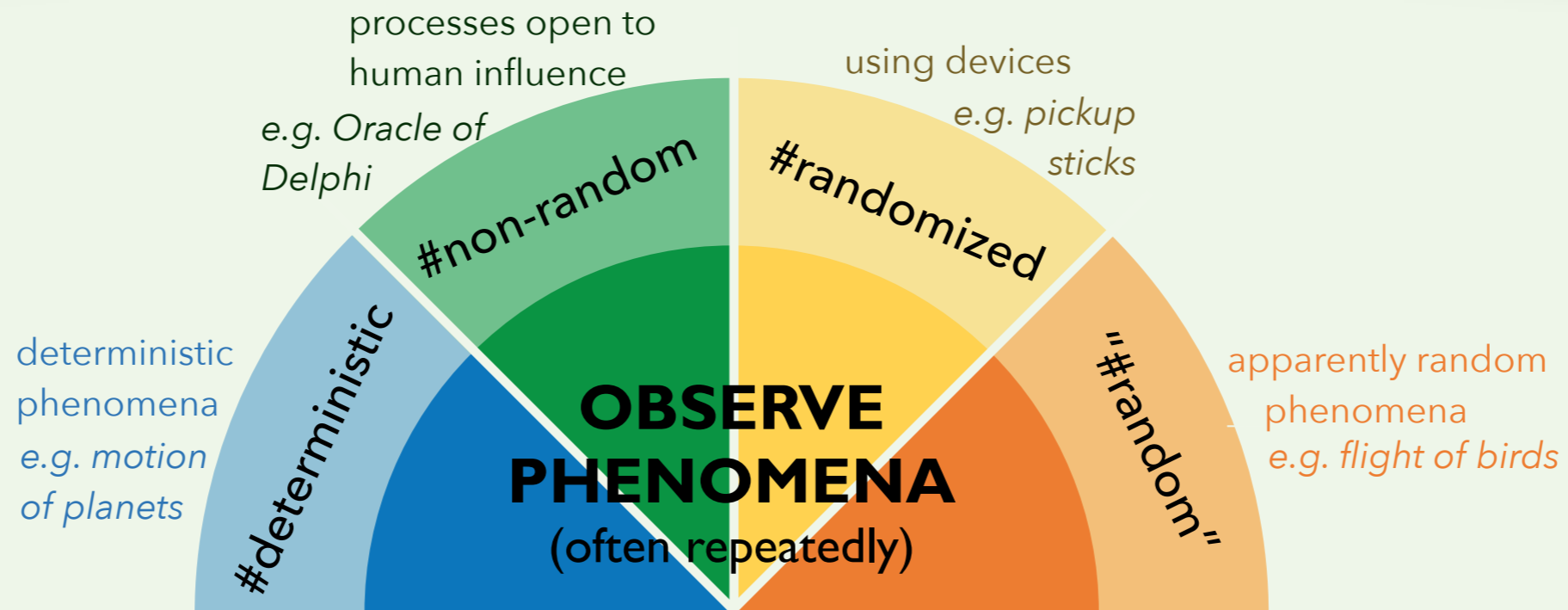
Tech Tools

Systems Framework, "Golden Threads" Project

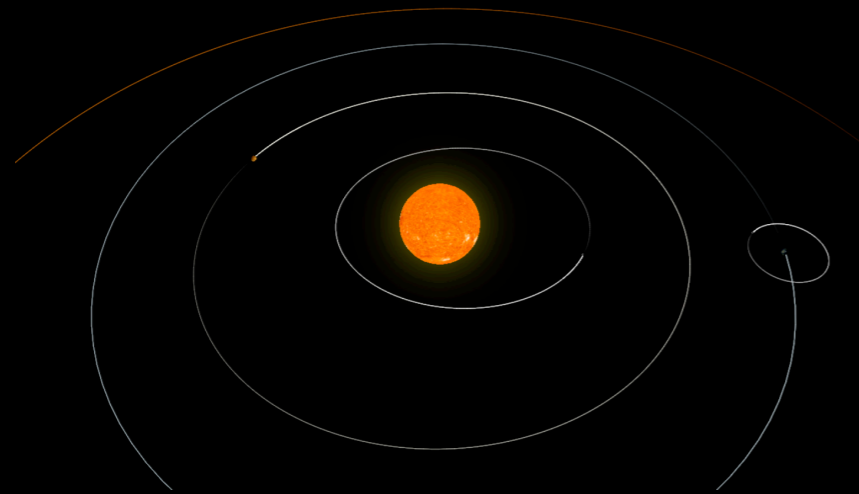
Pedagogical Views

Methods, Data Collection & Study Design

A Framework Pedagogical Views e Systems



#deterministic



Celestial Motion

#randomized



Ifa

#non-random



Egyptian "Bobble Head"

"#random"

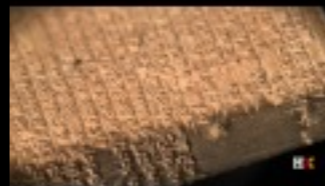


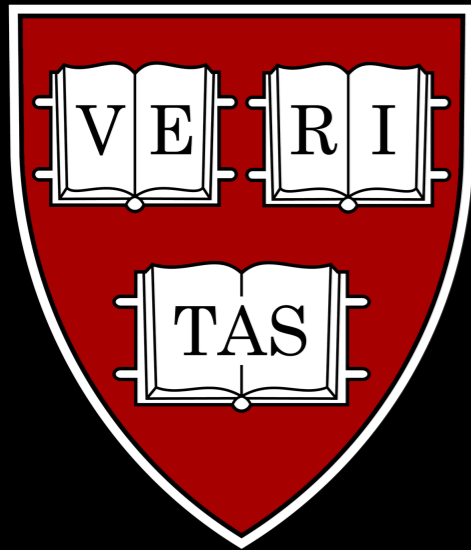
Comets of Doom



#non-random

Ancient Egyptian Divination, featuring Peter der Manuelian (FAS & Semitic Museum)





Owen **Gingerich**

Professor Emeritus of Astronomy and History of Science

Sara **Schechner**

Curator of Historical Scientific Instruments

Peter **Manuelian**

Professor of Egyptology & Director of Harvard Semitic Museum (FAS)

Piotr **Steinkeller**

Professor of Assyriology (Department of Near Eastern Language & Civilizations, FAS)

Emma **Dench**

Professor of Ancient and Modern and of the Classics (Department of the Classics, FAS)

Laura **Nasrallah**

Professor of New Testament and Early Christianity (HDS)

Jacob **Olupona**

Professor of African Religious Traditions (both FAS and HDS)

John **Overholt**

Curator of Early Modern Books and Manuscripts, Houghton Library

David **Carrasco**

Professor of the Study of Latin America (both FAS and HDS)

Rowan **Flad**

Professor of Archaeology (Anthropology Department, FAS)

John **Huth**

Professor of Science (Physics Department, FAS & Co-Director of Science, Radcliffe)

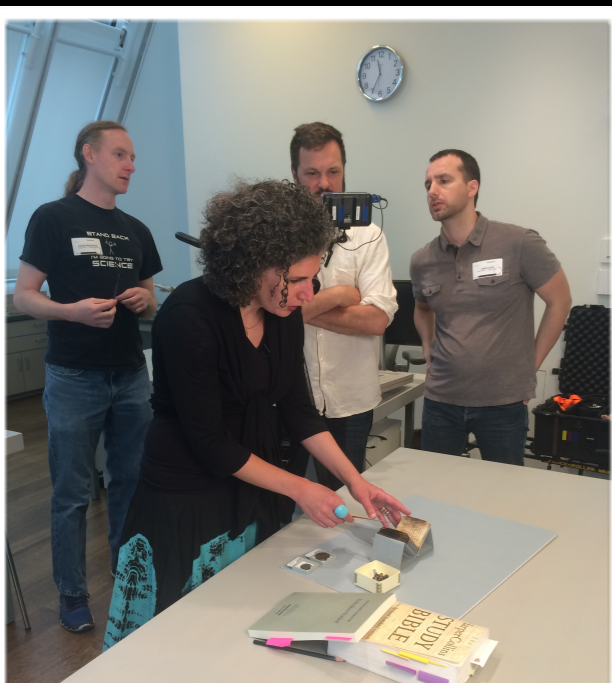
Don **Goldmann**

Professor in the Department of Immunology and Infectious Disease (HSPH)

Emilie **Hardman**

Research, Instruction & Digital Librarian, Houghton Library

[and several more to come, thanks!]



Harvard
Art Museums

Fogg Museum
Busch-Reisinger Museum
Arthur M. Sackler Museum



#randomized
Early Christian Divination, featuring Laura Nasrallah (HDS)

Full "Course"/Book



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Pedagogical Views

Methods, Data Collection & Study Design

"Golden Three" Pedagogical Views



Our Need to Know

Human beings have an inherent curiosity about future events. We want to know - we need to know what's going to happen to us, to our homes and loved ones, to our world a whole. This can drive us to learn more about our universe, but it can also leave us open to manipulation by others. When you see the Crystal Ball Mind icon, nearby material will illuminate humanity's fascination with the future and the way in which we react to predictions.

Key Questions:

- Where does our desire to know the future come from?
- How do we react to predictions?



Cognitive Biases

Sometimes the incredible, complex human mind can make equally complex errors. We pay attention to irrelevant details; we see patterns where they don't exist; we even reject information that contradicts our beliefs. Cognitive biases are the ways in which our mental shortcuts and heuristics get in our way. When you see the Tipped Scales icon, nearby material will point out the thought patterns that lead us to less accurate predictions, including over-generalization, confirmation bias, illusions of control, and the gambler's fallacy.

Key Questions:

- When does human nature get in the way of making an accurate prediction or recognizing a bad one?
- How has bias shaped our predictions and our response to them?



Subjective Analysis

To be widely accepted, predictions must be more than accurate - they must be appealing. Human beings judge predictions on more than just an objective basis. We apply skepticism, question believability, and look for the utility value in the things we hear. When you see the Heart-and-Mind icon, nearby material will speak to our emotional evaluation of predictions and the things that human beings choose to value.

Key Questions:

- How do human beings choose what predictions to value?
- What determines how strongly we act on a prediction?

Key Questions:

- What can we do to validate a prediction or theory?
- How do we measure accuracy?



The Observation/Theory Cycle

The Cycle icon refers to humans' unceasing endeavor to create theories that explain the patterns they observe around them. Sometimes individuals who create the theories also seek to test them, but other times, they love their theories so much that they leave the testing to future generations.

Key Question:

- How do human beings formalize the patterns that we see in our observations?



Who's Making the Prediction?

Every culture agrees that predictions are best made by experts. However, different traditions disagree on what makes one an expert. Some prognosticators are highly trained, while others are chosen (or cursed) by the gods. Many traditions require both divine blessing and worldly preparation. When you see the Yin-Yang icon, nearby material will explore prediction as an intuitive or teachable process, and investigate the nature of both diviners and those who interpret their predictions.

Key Questions:

- Why are certain individuals uniquely qualified to make certain predictions?



The Hidden Nature of our Universe

Every prediction is made in context. Whether this context is our planet's climate, an economic market, the orbits of comets, or our own social networks, the rules of these systems are at the heart of our ability to understand them. The nature of our universe is at the very heart of prediction. When you see the "cracked eye" icon, nearby material will deal with concepts such as free will, determinism, and probability; natural or supernatural laws; the invisible hand of the market; and the root source of uncertainty.

Key Questions:

- What properties of our universe make it possible to predict the future?
- What makes it difficult to predict the future?

"Golden Threads"



Ancient Prediction Systems

Jacob Olupona, Rowan Flad, & David Carrasco, part 3

Ancient Prediction Systems, featuring David Carrasco (HDS), Rowan Flad (FAS) & Jacob Olupona (HDS)

"Golden Three" Pedagogical Views



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- Wikipedia store

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- Languages
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- Suomi
- Edit links



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So, we are taking an opportunistic approach...

en.wikipedia.org/wiki/Methods_of_divination

Methods of divination

From Wikipedia, the free encyclopedia

This article is about the numerous varieties of divination. For divination as a whole, see Divination.

 This article **has an unclear citation style**. The references used may be made clearer with a different or consistent style of [citation](#), [footnoting](#), or [external linking](#). (December 2013) *(Learn how and when to remove this template message)*

Innumerable **methods of divination** can be found around the world, and many cultures practice the same methods under different names. During the [Middle Ages](#), scholars coined terms for many of these methods — some of which had hitherto been unnamed — in [Medieval Latin](#), very often utilizing the [suffix](#) *-manteia* when the art seemed more mystical (ultimately from Greek *mantis*, prophet) and the suffix *-scopia* when the art seemed more scientific (ultimately from Greek *skopein*, to observe). Names like *drimimantia*, *nigromantia*, and *horoscopia* turned up, along with a slew of other esoteric (and distinctly Medieval) "sciences" such as [phrenology](#) and [physiognomy](#).

Of course, some forms of divination are much older than the Middle Ages, like [haruspication](#), while others (such as [megapolisomancy](#) or coffee-based [tasseomancy](#)) are born of the 20th and 21st century.

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[See also](#) · [References](#)

A [edit]

- abacomancy** *f*'[æbəkoomænsif](#)/ (also **amathomancy**): by dust ([Hebrew](#) *ʿābāq*, dust + [Greek](#) *manteia*, prophecy)
- acultomancy** *f*'[əˈkʌltomænsif](#)/ (also **acutomancy**): by needles (from *acutomancy* below, influenced by [Latin](#) *aculeus*, needle)
- acutomancy** *f*'[əˈkjuːtomænsif](#)/ → see [ACULTOMANCY](#) ([Latin](#) *acus* [*acut-*], needle + [Greek](#) *manteia*, prophecy)
- adromancy** *f*'[ædromænsif](#)/ → see [ALOMANCY](#) (from *idromancy* below, influenced by *alomancy*)
- adryomancy** → see [HYDROMANCY](#) (metathesis of *hydromancy*)
- aeromancy** *f*'[ɛroomænsif](#): by atmospheric conditions ([Greek](#) *āēr*, air + *manteia*, prophecy)
- agalmatomancy** *f*'[əˈɡoːlmətomænsif](#):^[*citation needed*] by statues ([Greek](#) *agalma* [*agalmat-*], statue + *manteia*, prophecy)
- aichmancy** *f*'[ɛkmoomænsif](#): by sharp objects ([Greek](#) *aikmē*, spearhead + *manteia*, prophecy)
- ailuromancy/aeluromancy** → see [THERIOMANCY](#)
- alectormancy/alectromancy** *f*'[əˈlɛktromænsif](#): by rooster sacrifice ([Greek](#) *alektor*, rooster + *manteia*, prophecy)
- alectryomancy/alectromancy**: by rooster divination → see [THERIOMANCY](#)
- aleuromancy** *f*'[əˈljʊroomænsif](#): by flour; see also [CHARTOMANCY](#) ([Greek](#) *aleuron*, meal + *manteia*, prophecy)
- alomancy/Halomancy** *f*'[æloomænsif](#)/ (also **adromancy**): by salt ([Greek](#) *hals*, salt + *manteia*, prophecy)
- alphitomancy** *f*'[ælfitomænsif](#): by barley ([Greek](#) *alphis* [*alphit-*], barley + *manteia*, prophecy)
- alveromancy** *f*'[ælˈviəroomænsif](#):^[*citation needed*] by sounds
- amathomancy** *f*'[æməθoomænsif](#)/ → see [ABACOMANCY](#) by sand ([Greek](#) *amathos*, sandy soil + *manteia*, prophecy)
- ambulomancy** *f*'[æmbjloomænsif](#): by walking ([Latin](#) *ambulāre*, to walk + [Greek](#) *manteia*, prophecy)
- amniomancy** *f*'[æmnioomænsif](#): by placenta ([Greek](#) *amniōn*, [amnion](#) + *manteia*, prophecy)
- anemoscopy/anemomancy** *f*'[æniˈmɒskɒpif](#): by wind ([Greek](#) *anemos*, wind + *-scopiā*, observation)
- anthomancy** *f*'[ænθoomænsif](#): by flowers ([Greek](#) *anthos*, flower + *manteia*, prophecy)
- anthracomancy** *f*'[ænθrəkomænsif](#): by burning coals ([Greek](#) *anthrax* [*anthrak-*], charcoal + *manteia*, prophecy)
- anthropomancy** *f*'[ænˈθrɒpomænsif](#): by human sacrifice ([Greek](#) *anthrōpos*, human being + *manteia*, prophecy)
- anthroposcopy** *f*'[ænθrɒσposkɒpif](#): by physical appearance ([Greek](#) *anthrōpos*, human being + *-scopiā*,



An arithmancer from *Atalanta Fugiens* (1618), by Michael Maier

"Prediction" Freshman Seminars, 2015



James Leonard, artist



*Sara Schechner
Collection of Historical Scientific Instruments*



*Emilie Hardman,
Houghton Library*

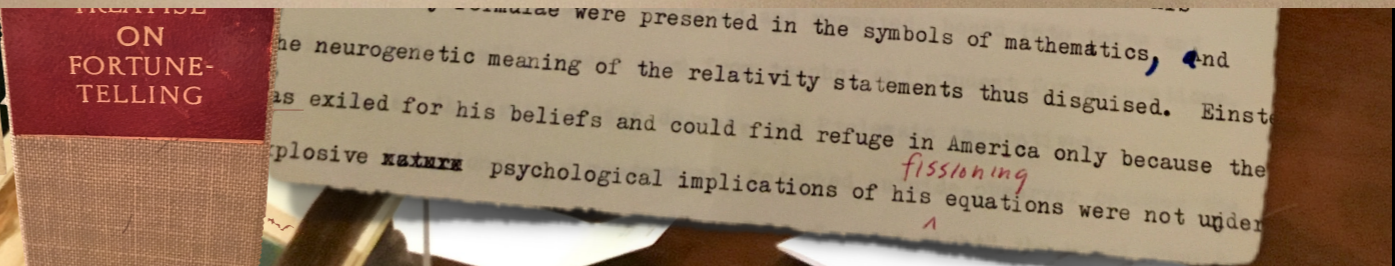
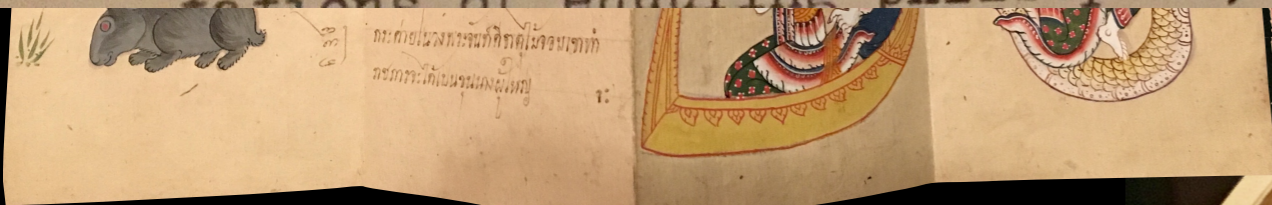


(by Timothy Leary)

2.6 The Essence Meaning of the Tarot Has Been Concealed By Deliberate and Accidental Distortions

The Tarot cards deck is an ancient formula of neurogenetic symbols which has been passed down over the centuries. A complex psychological signal of this sort which persists in time across many generations must have some neurogenetic meaning, must relate somehow to modern scientific energy models.

Occult systems are time-scripts, neurogenetic messages sent across ~~the centuries~~ *millennia*. They are crude, blurred, short-hand descriptions of energy processes, psychophysical formulae, compressed and purified representations of enduring philosophic, alchemical (i.e. neurochemical) principles.





Chinese Oracle Bones, featuring Prof. Rowan Flad (FAS)





Paul Banks: We often think of using computer models to predict elections as something relatively recent, such as Nate Silver's FiveThirtyEight. However, fascinatingly, there was an MIT-based consulting company (PredictionX) that was doing this kind of research into this case study of early computer simulated prediction, how this connects to modern simulations is an important thread for us to explore. Paul's contribution will be a "case study" of Simulmatics, and also materials discussing the changing (or unchanging) public perception and attitudes of simulations of human behavior (e.g. voting). A modern example of the latter would be the Facebook "emotional contagion" controversy.

Radcliffe Research Partners on Prediction, 2016

Paul Banks

Cengiz Cemaloglu: Simply because a prediction system is not "scientific" does not mean it lacks internal consistency. We have seen in PredictionX multiple examples of divination systems that lack "science" but require their diviners to follow a set of rules. The shape of patterns made in sand or Barutu diviners having to match sheep livers to a specific set of predictions. Amazingly, we learned from Cengiz that when he lived in Turkey and used to make predictions based on coffee grounds that he, too, had a set "divination manual" that he followed for telling the future. Cengiz's personal experience and background in doing anthropological research will be a phenomenal addition to the course. Cengiz' contribution will be: 1) a video where he describes his experiences as a (high-school age) diviner in Turkish coffee shops; and 2) an intercomparison of "manuals" for diviners covered in PredictionX, including the Christian Coox shown by Prof. Laura Nasrallah, the Barutu discussed by Prof. Piotr Steinkeller, the Ifa traditions highlighted by Prof. Jacob Olupona, and the Chinese Coox shown by Prof. James G. Thompson's Handbook)

Origins of political prediction, Simulmatics

Cengiz Cemaloglu

Diviners' guides & Coffee Grounds

Man Hin Sum (Mac): The PredictionX course has several important diagrams that need to be clearly presented to an audience in order to understand the fundamental concepts of the course (The Framework of Predictive Systems and Data Collection & Studies). Mac showed a real knack for graphic design and data visualization, as well as a keen interest in the overall course material -- her planned contribution of stylizing these diagrams to be visually appealing and pedagogically accurate would be incredibly useful for the project.

Philip Chowdry

The philosophy of prediction over time

Henna Hundal: In the first part of PredictionX, we look at prediction "for you" -- individual-level focused, answering questions such as who should you marry or when will you die? In the second part and most of the third part, we look at prediction "for all" -- wide ranging systems that look at the big picture, such as a theory of gravity or climate change. Recently, though, the advent of sensors and personal genomics has made very individual-level "observation" and prediction more interesting and more controversial. One of the most important, highly controversial and philosophically challenging "personal level" data-gathering efforts whose goal is predictive is The Personal Genome Project, which began in Prof. George Church's lab, here at Harvard. In even more personal genomic analyses (such as 23andme, difficult issues normally subject to scrutiny by professionals -- such as the treatment of uncertainty-- are brought to the fore. Henna will do in-depth and interview scientists at The Personal Genome Project to help us fit this piece of "personal prediction" into the bigger PredictionX puzzle. Her contributions will take the form of facilitating video interviews, and written contributions.

Henna Hundal

The Personal Genome Project

Philip Chowdry: What is the philosophy of prediction? How would the great thinkers of the past such as Aristotle or Galen even think of what they were studying -- did they perceive the universe as knowable or is that even an appropriate question to ask? Philip's research, which will likely take the form of one or more standalone essay-like thought pieces, will help probe into these "deep" questions of prediction that, while not always apparent, forms an undercurrent to everything we look at.

Mac Sum

Visual design

Mirac Suzgun: To date, the PredictionX project has filmed nearly 100 video segments, ranging from a demonstration of Chinese bone burning to student readings in a climate change divination tent to a trip to the Royal Society archives to see Isaac Newton's original manuscript. However, how do what are the underlying themes and stories that connect these different forms of prediction? At present, we are hand-tagging videos for mentions of important keywords. Mirac is willing to both help with the tagging, and to explore whether informing a machine-learning algorithm with human-created tags might generate good automatic tags that would need only minimal refinement by human experts. We expect that his strong CS background may in fact make the latter feasible, especially if he can build on similar attempts by others, which may come from within edX, or the broader Machine Learning and Natural Language Processing communities in Computer Science.

Mirac Suzgun

Adaptive tagging

Emily Zhu: Combining her interests in Statistics and Sociology, we will ask Emily to explore how human factors play out in standard epidemiological models (e.g. SIR, SEIR). Possible contributions would include identifying good online interactives demonstrating the SIR, SEIR, and agent-based models, and/or a textual research summary of how the "human nature" terms are modeled statistically in public health simulation.

Emily Zhu

Epidemiological simulations

Did Aristotle "believe in" signs from the gods?



Emma Dench (FAS) commenting on the Greek & Roman gods

PREDICTION THE PAST AND PRESENT OF THE FUTURE



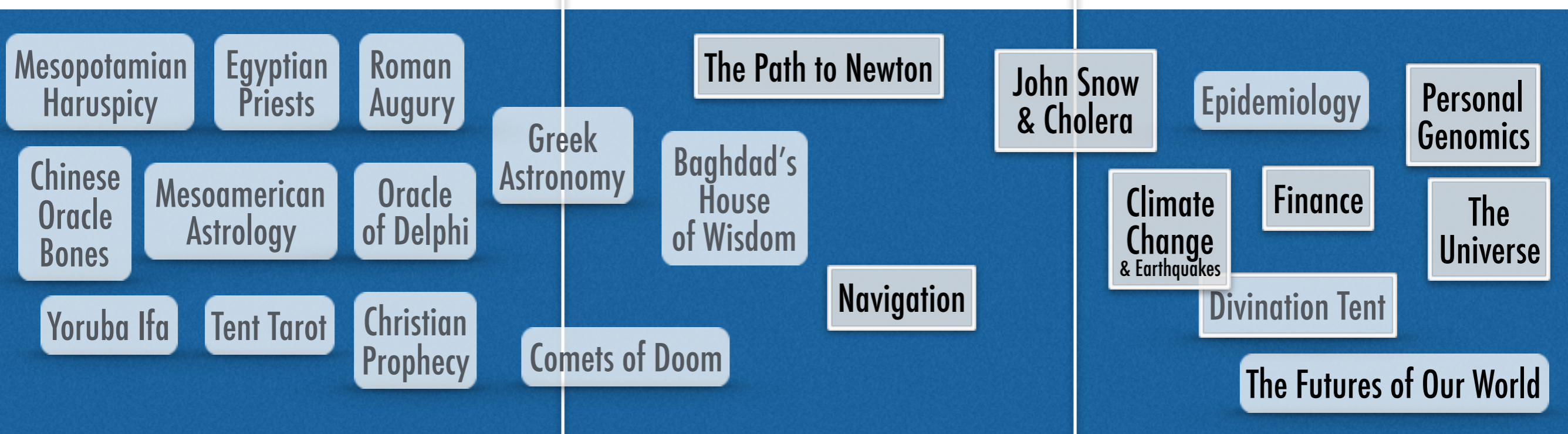
1 Omens, Oracles & Prophecies



2 The Rise of Theory



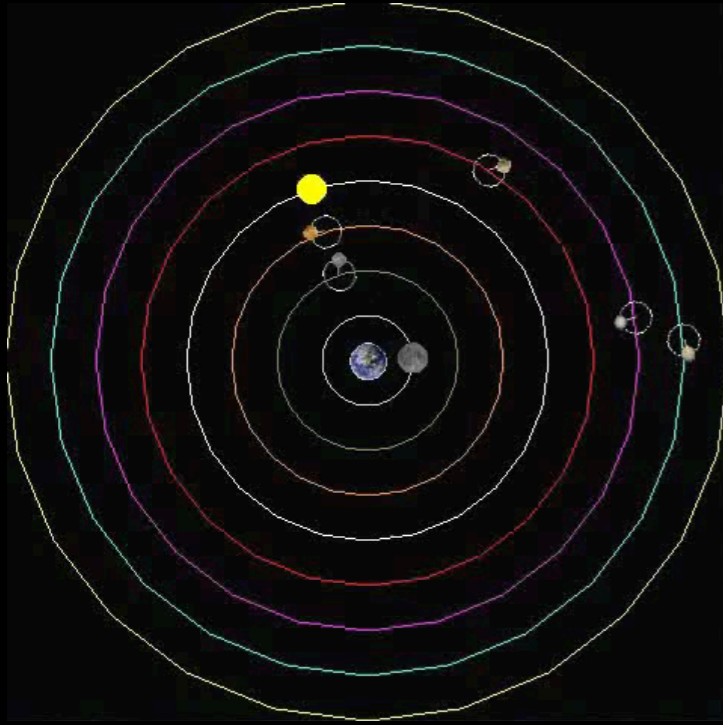
3 Modern Simulation



TIMELINE TOOL, INTERACTIVE MAPS (EARTH & SKY), ANNOTATION TOOL(S)

Ptolemaic

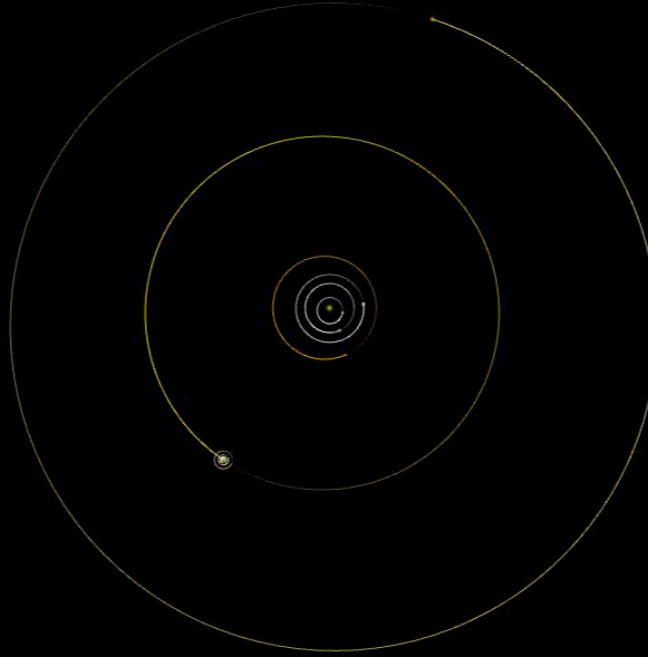
*Geocentric,
with Epicycles*



150 A.D.

Copernican

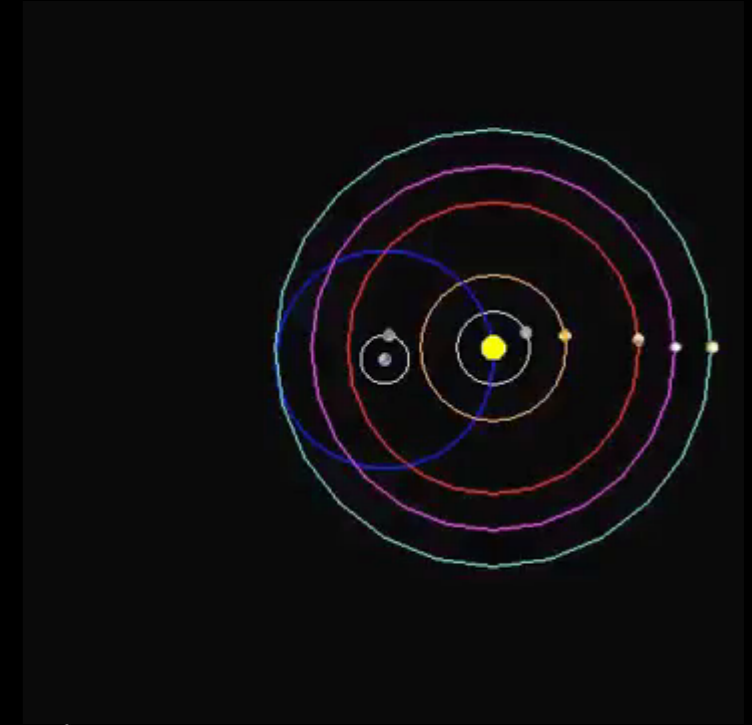
*Heliocentric
(correct)*



1543

Tychonic

*Geoheliocentric
hybrid*



1587

(diagrams are not to scale)

PREDICTION THE PAST AND PRESENT OF THE FUTURE



1 Omens, Oracles
& Prophecies



2 The Rise
of Theory



3 Modern
Simulation

The Path to Newton

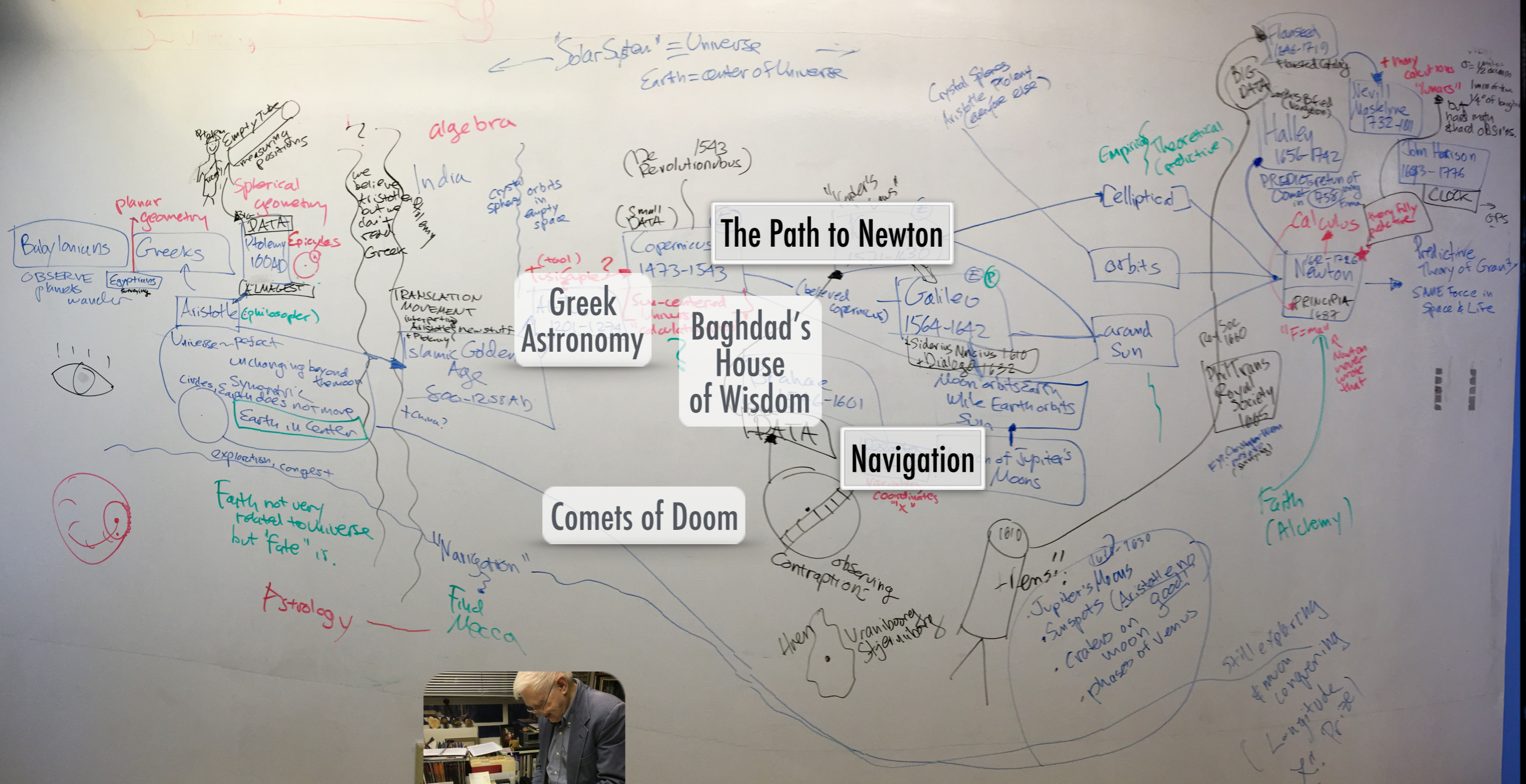
Greek
Astronomy

Baghdad's
House
of Wisdom

Navigation

Comets of Doom

The "Path to Newton" (& Longitude)

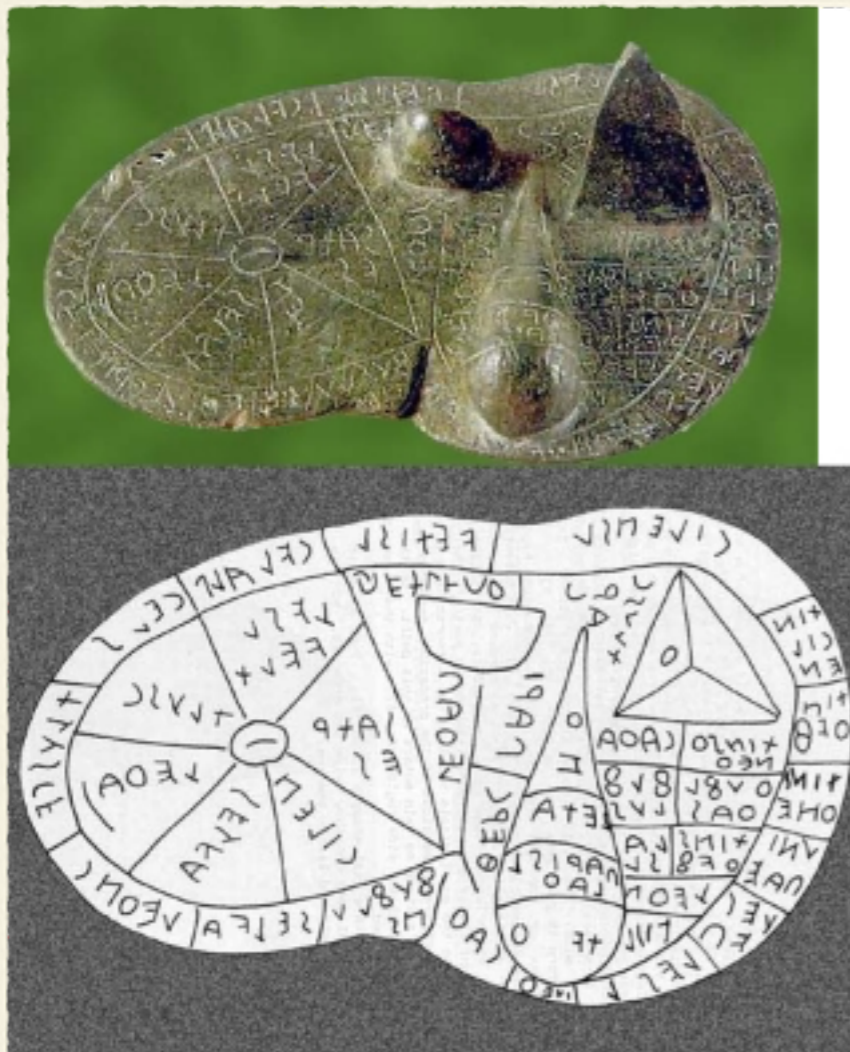


The Bārûtu

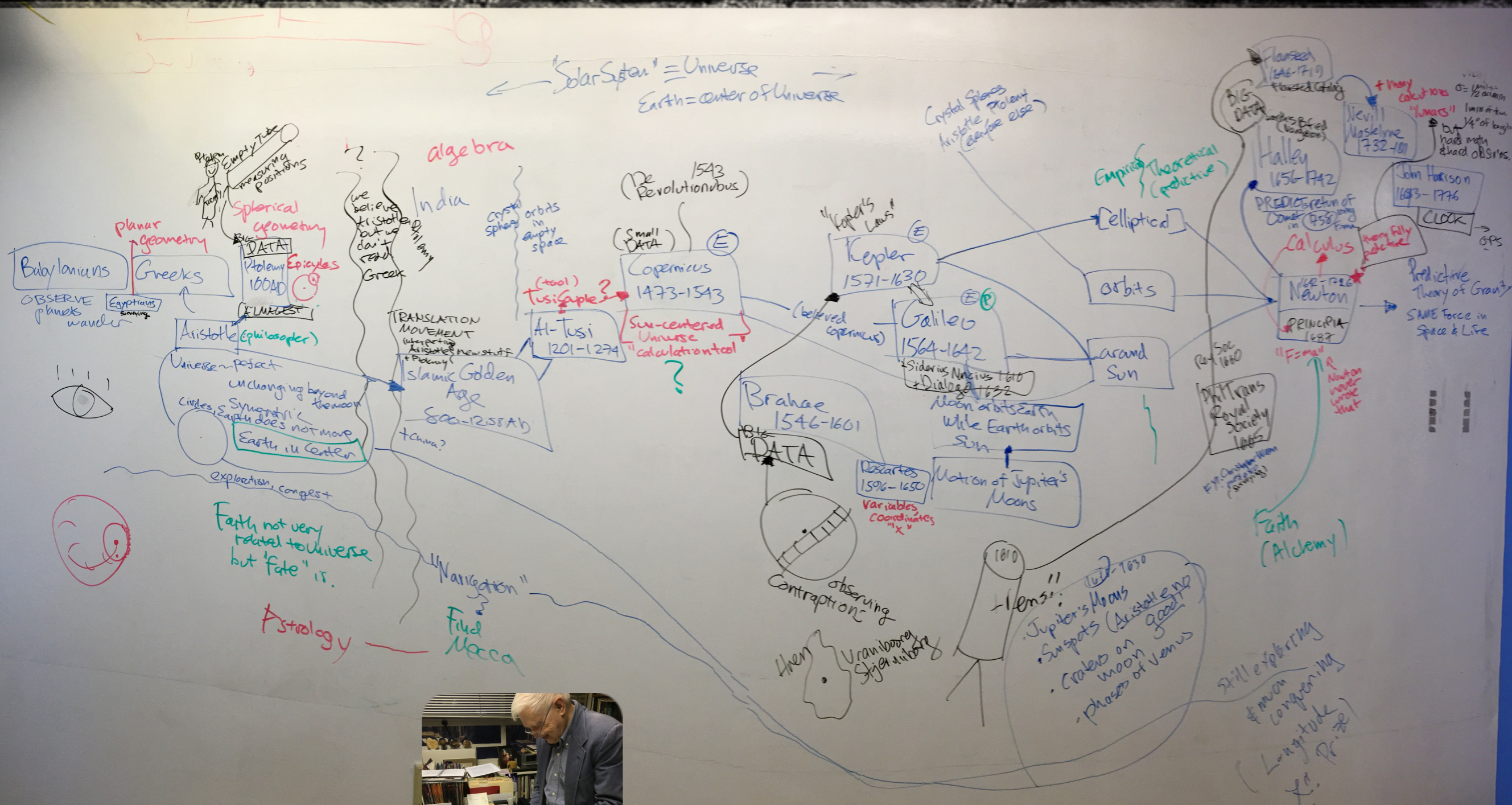
(or, *What do sheep's livers have to do with Isaac Newton?*)

*Models of divinatory livers
19th-18th century BC
Palace of Mari
(from the Louvre collection)*

ETRUSCAN LIVER OF PIACENZA



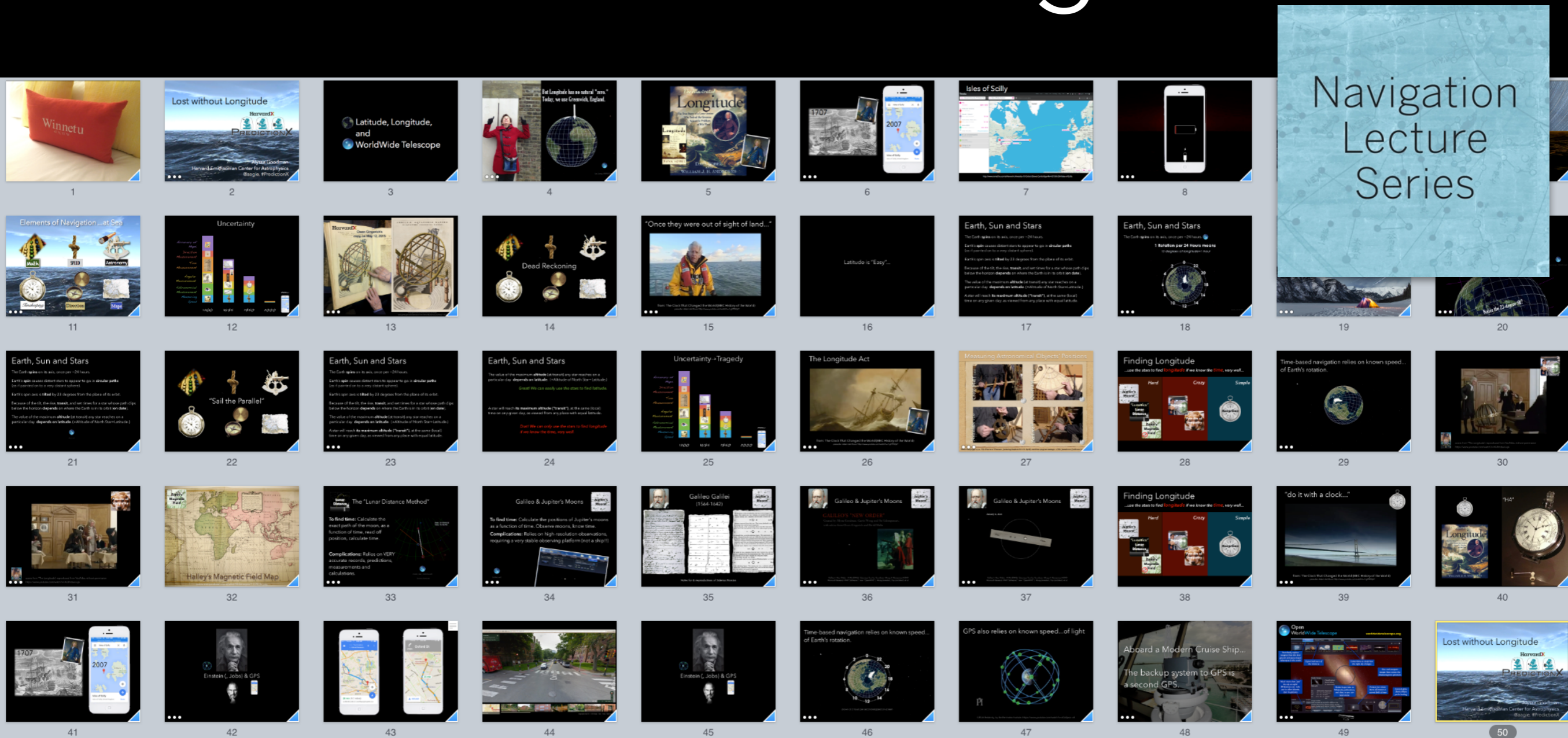
The "Path to Newton" (& Longitude)





PREDICTIONX

Lost without Longitude



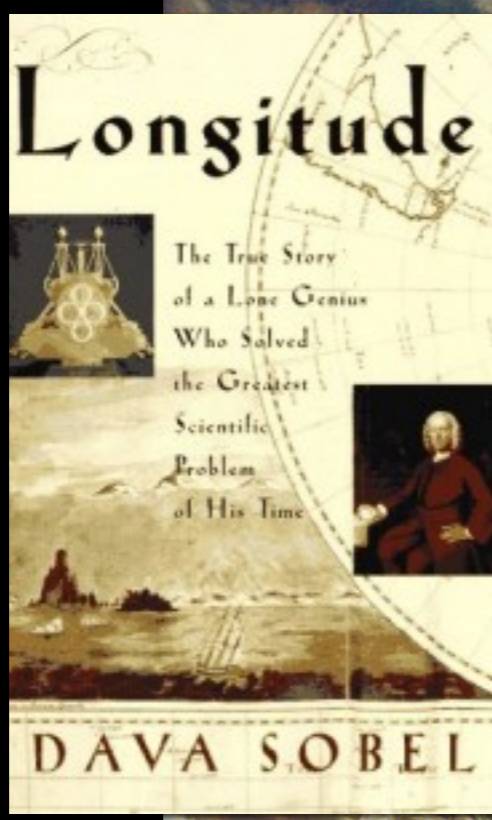
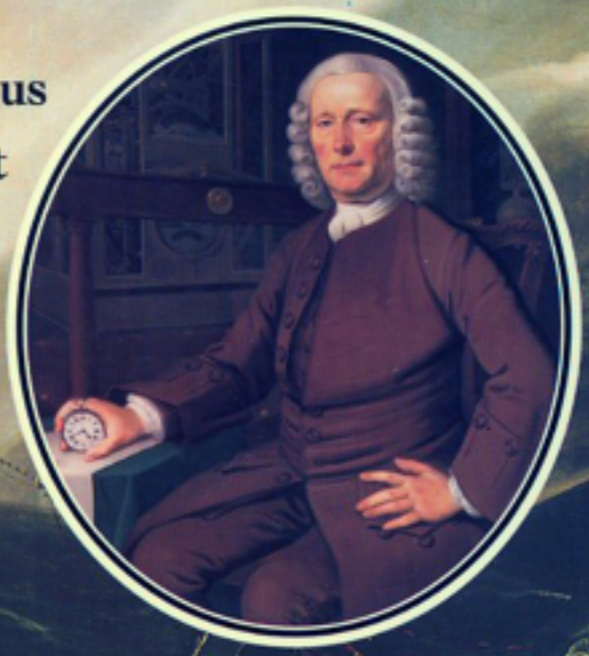
(now) featuring Owen Gingerich, Alyssa Goodman (host), John Huth, Chris Lintott, Rory McEvoy, Keith Moore, Martin Rees, Simon Schaffer, Sara Schechner, Dava Sobel, Curtis Wong

Lost without Longitude

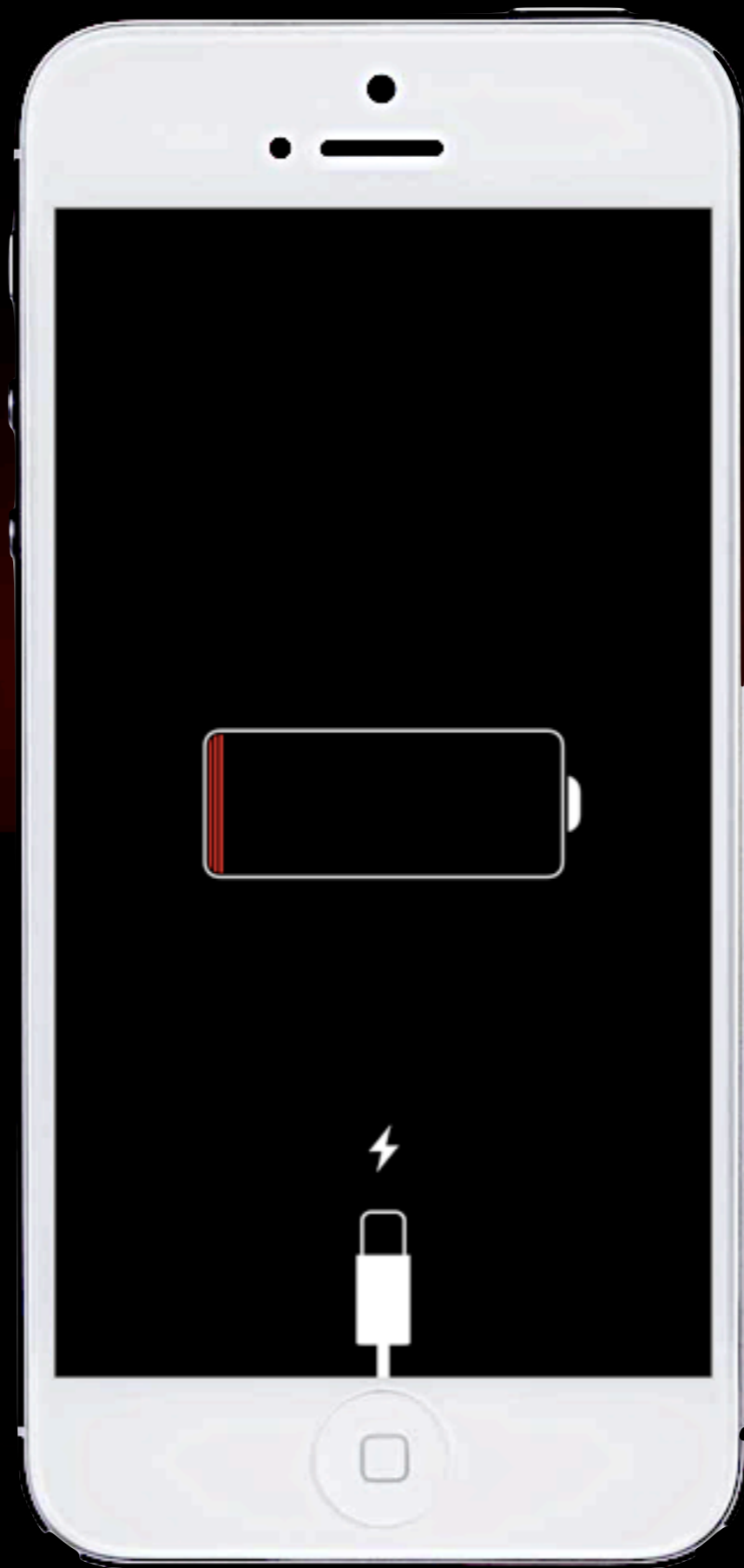


The Illustrated
Longitude

The True Story of a Lone Genius
Who Solved the Greatest
Scientific Problem
of His Time



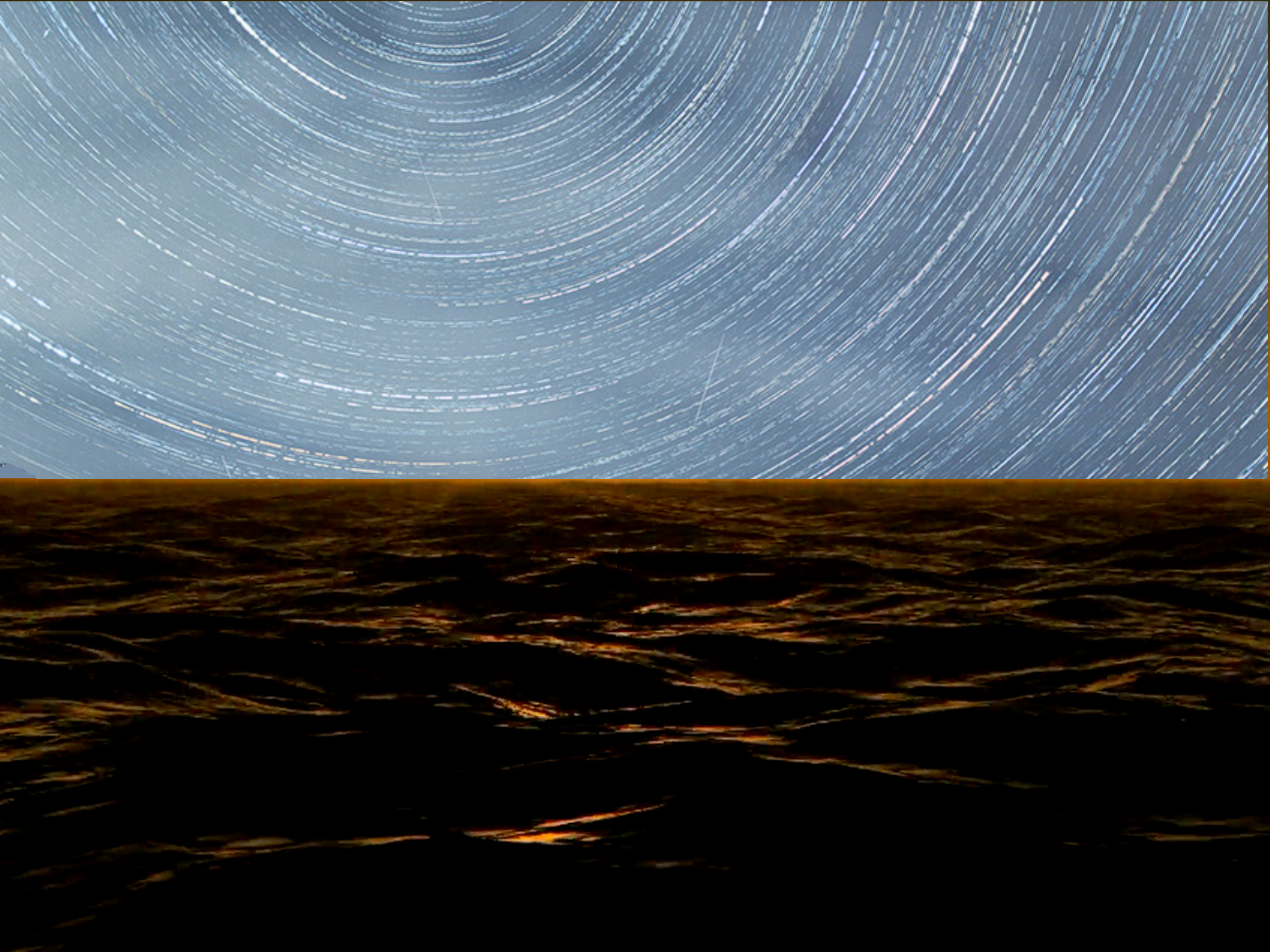
DAVA SOBEL
AND
WILLIAM J. H. ANDREWES



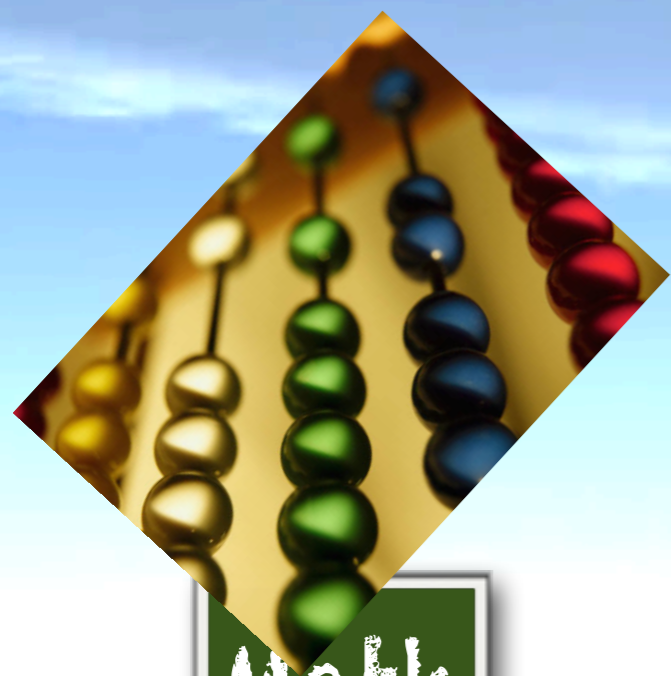


Skymarks

Landmarks



Elements of Navigation...at Sea



Math



SPEED



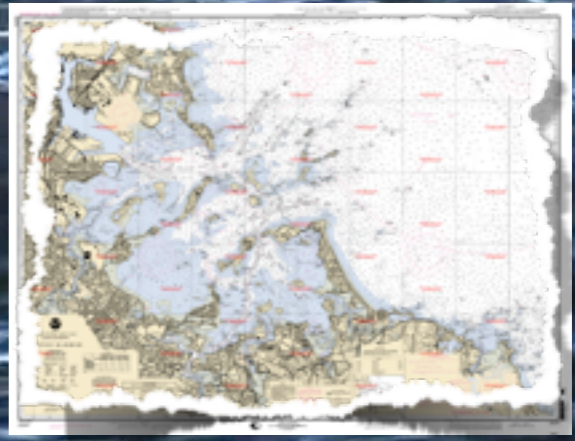
Astronomy



Timekeeping



Direction



Maps

Uncertainty

Accuracy of
Maps

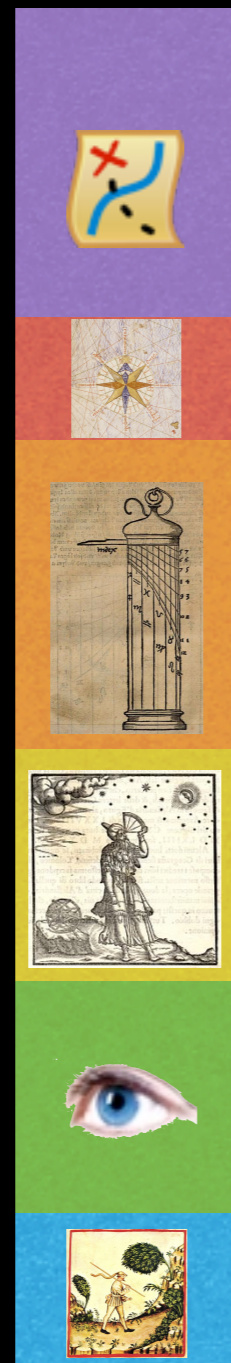
Direction
Measurement

Time
Measurement

Angular
Measurement

Astronomical
Measurement

Measuring
Speed



1200



1675



1750



2000

now





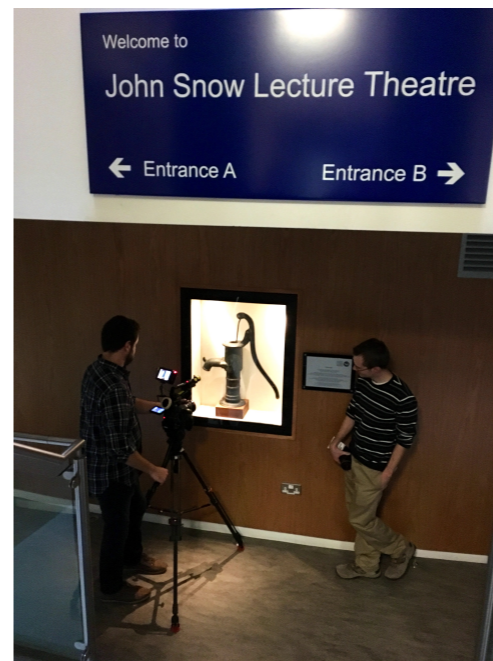
HX



HX



PREDICTIONX





PREDICTIONX



Full "Course"/Book



1 Omens, Oracles & Prophecies

"Parts"

3 Modern Simulation

Mesopotamian Haruspicy

Egyptian Priests

Roman Augury

The Path to Newton

John Snow & Cholera

Epidemiology

Personal Genomics

Chinese Oracle Bones

Mesoamerican Astrology

Oracle of Delphi

Topics

&

Mini-Courses

Finance

The Universe

Yoruba Ifa

Tent Tarot

Christian Prophecy

Comets of Doom

Comets

& Earthquakes

Divination Tent

The Futures of Our World

Tech Tools

Systems Framework, "Golden Threads" Pedagogy, Data Collection & Study Design

Pedagogical Views

Geographic Region Picker



selected region(s) is (are) highlighted

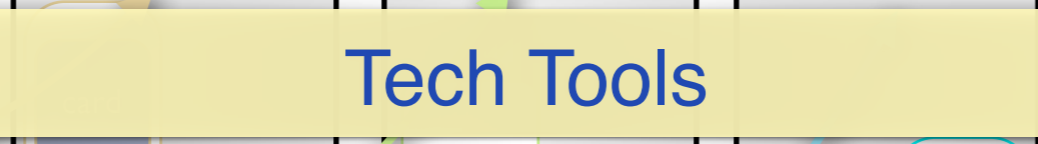


toggleable map picker/view

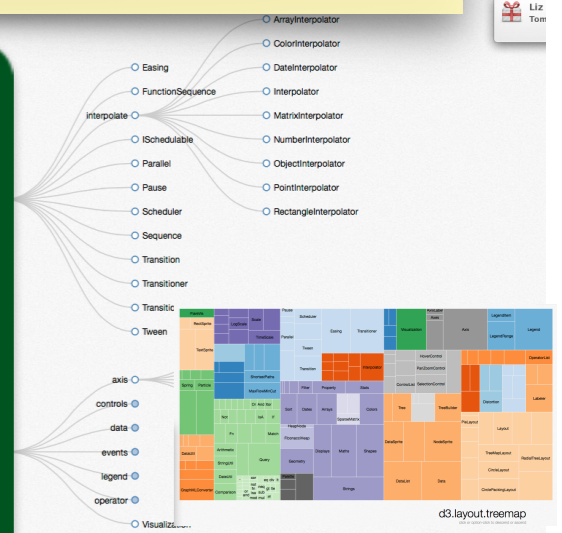
400
500
600
700
800
900
1000
1100
1200



Topic Picker
(interfaces could be selectable, and toggleable, options shown here are dendrogram-style or treemap)



Dynamic Hyperlinked Parallel Timelines, shown as scrolling bands for (several) Region-Topic-Provider Combinations (scroll direction is time & scale is zoomable)



Content Providers
(in the long view, these would be any who comply with location and time metadata standards)

- ✓ Wikipedia
- HarvardX
- NY Public Library
- NY Times
- more...


PREDICTIONX beyond Harvard



Howard **Cutler**
Executive Producer (WGBH, retired)

James **Leonard**
Independent Artist

Chris **Lintott**
Professor of Astrophysics, Oxford University

Rory **McEvoy**
Curator of Horology, Royal Observatory Greenwich

Keith **Moore**
Librarian, Royal Society

Martin **Rees**
Emeritus Professor at Cambridge, and Astronomer Royal

Simon **Schaffer**
Professor of History of Science, University of Cambridge

Dr. Rosalind **Stanwell-Smith**
Lecturer at the London School of Hygiene and Tropical Medicine

Dava **Sobel**
Author

Curtis **Wong**
Principal Researcher at Microsoft Research




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Project Lead

Jared **Voss**
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Amanda **Justice**
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Kevin **Belli**
Lead Videographer

Alex **Auerima**
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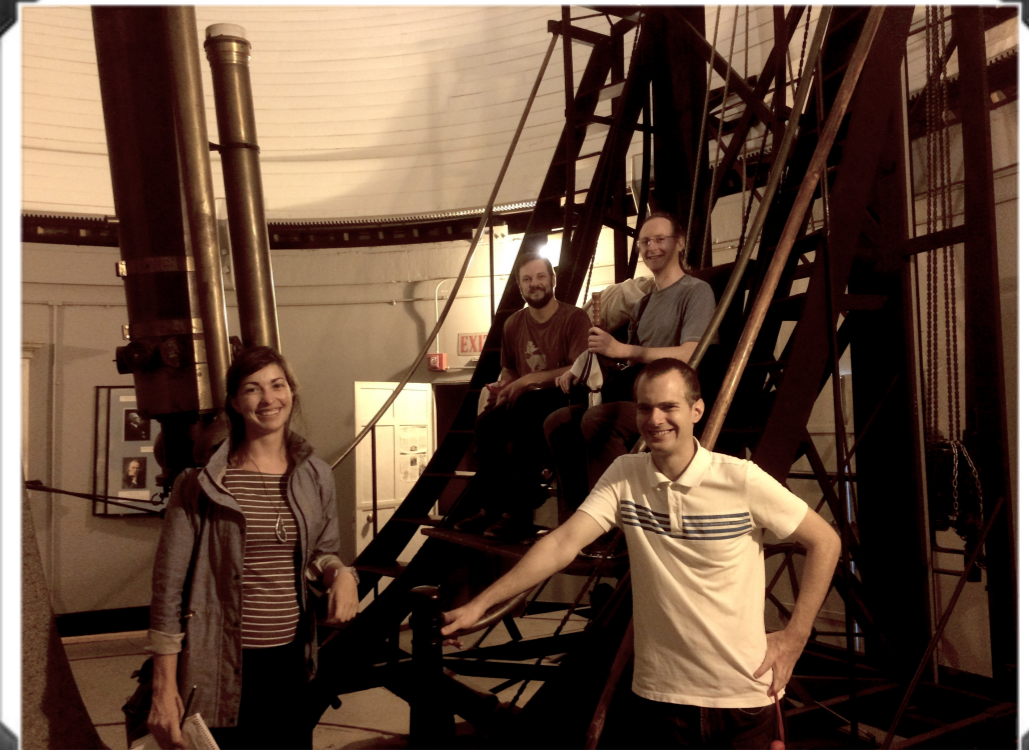
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Videographer

Morgan **Laforge**
Videographer

Luis **Duarte**
Academic Technologist

Dylan **Clark**
Teaching Fellow

Allyssa **Metzger**
Teaching Fellow



with special thanks to Rob **Lue** (HX Faculty Director), Samantha **Earp** (HX Executive Director), and Jon **Alper** (HX Technical Operations Manager)

The SHEEP of DESTINY



He SMILES because he sees
your future.

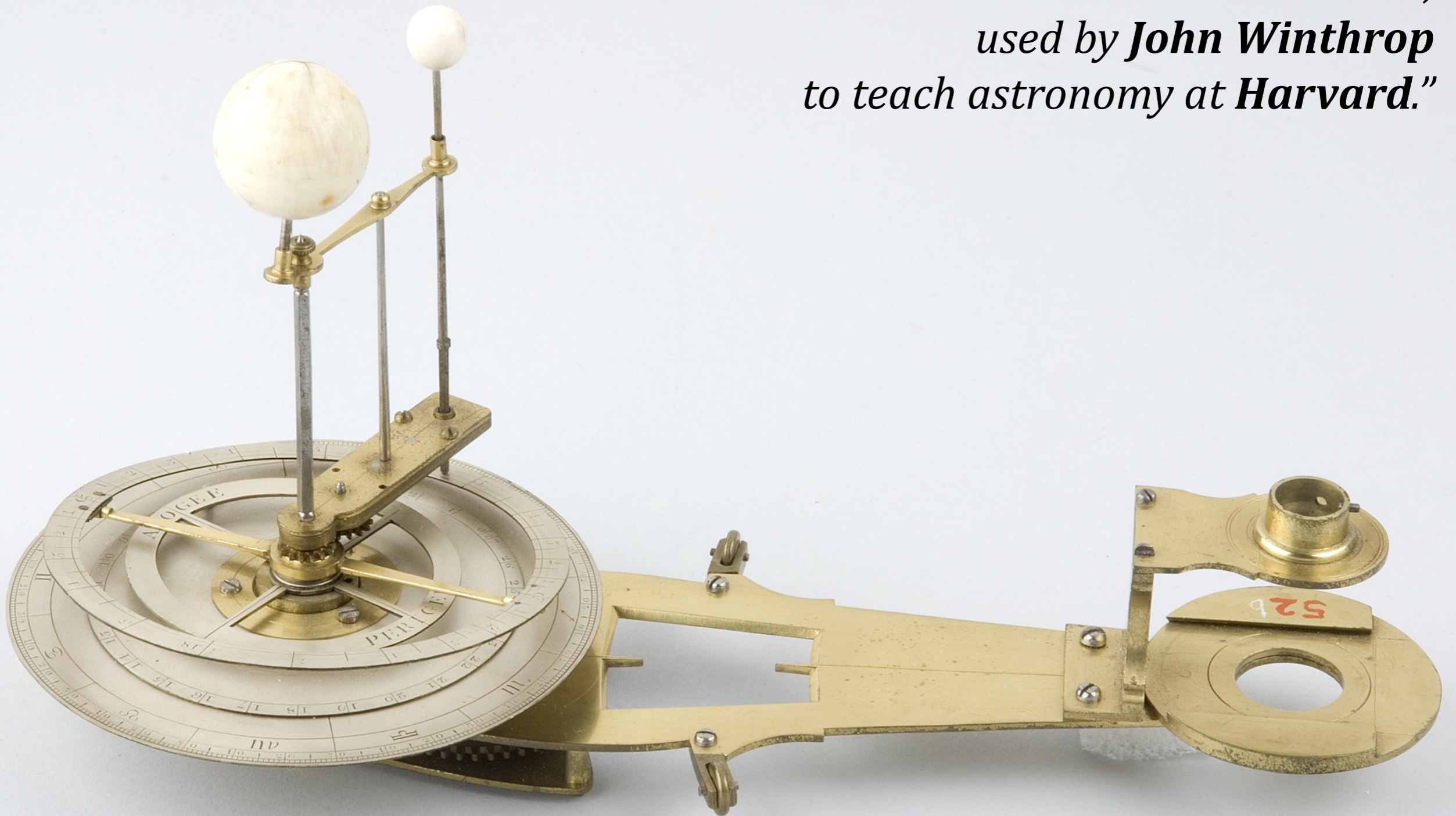
And Oh, how HAPPY shall
that future be!

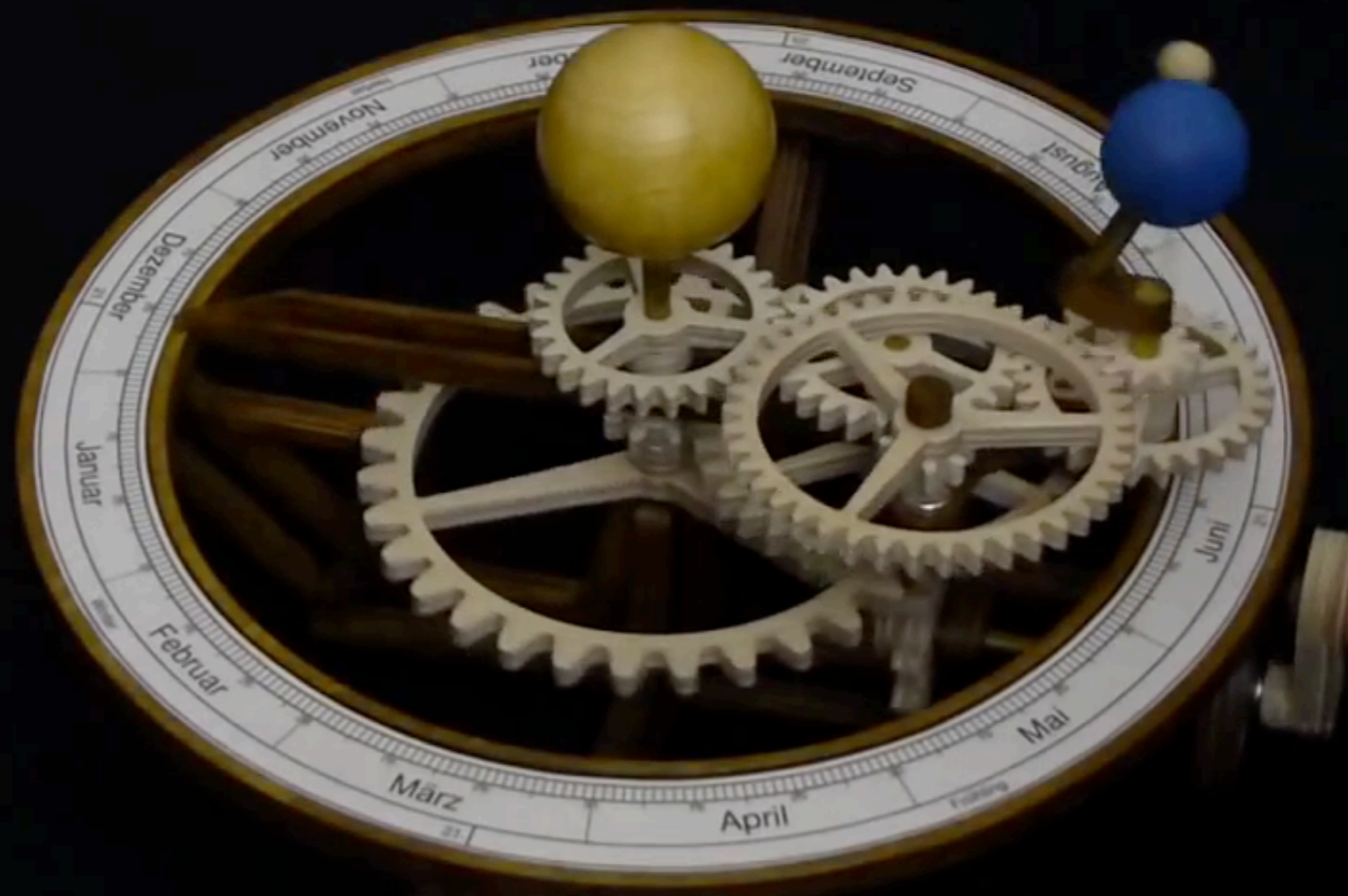


Stars seen as 'eyes of night' observed by an astronomer, whose eye is stretched from its socket; (Maya) Codex Madrid, pl. 34



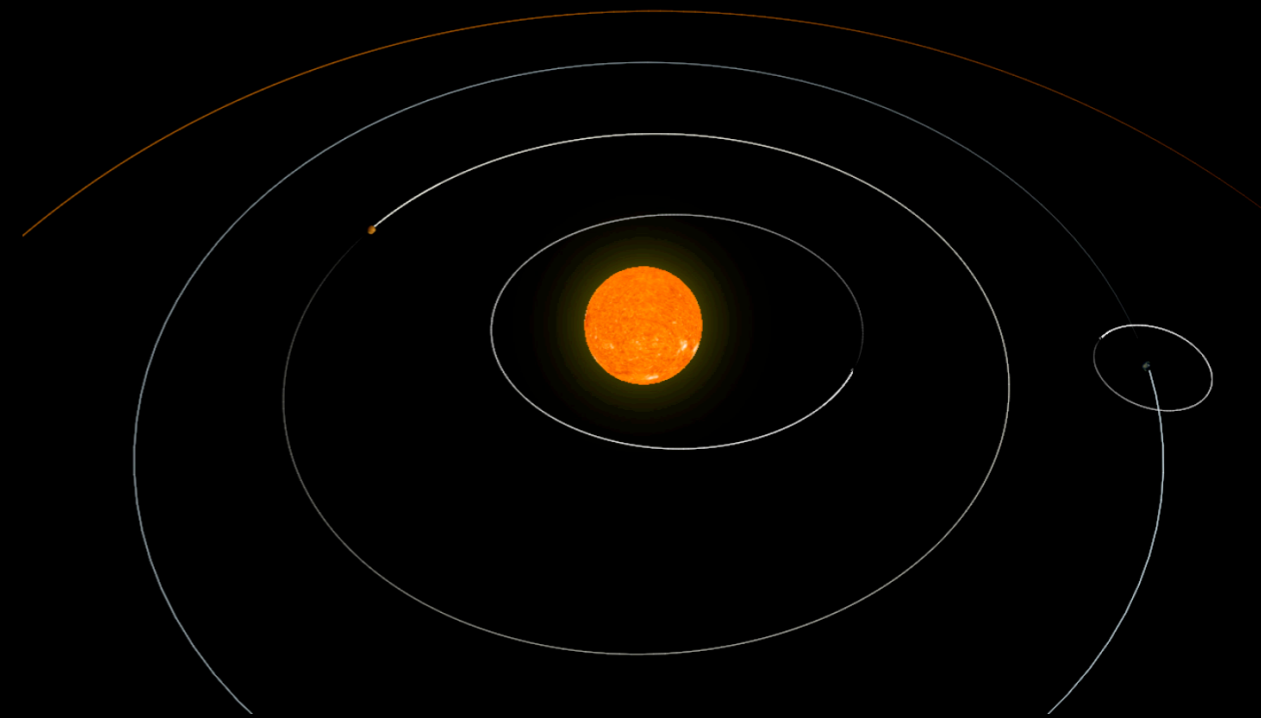
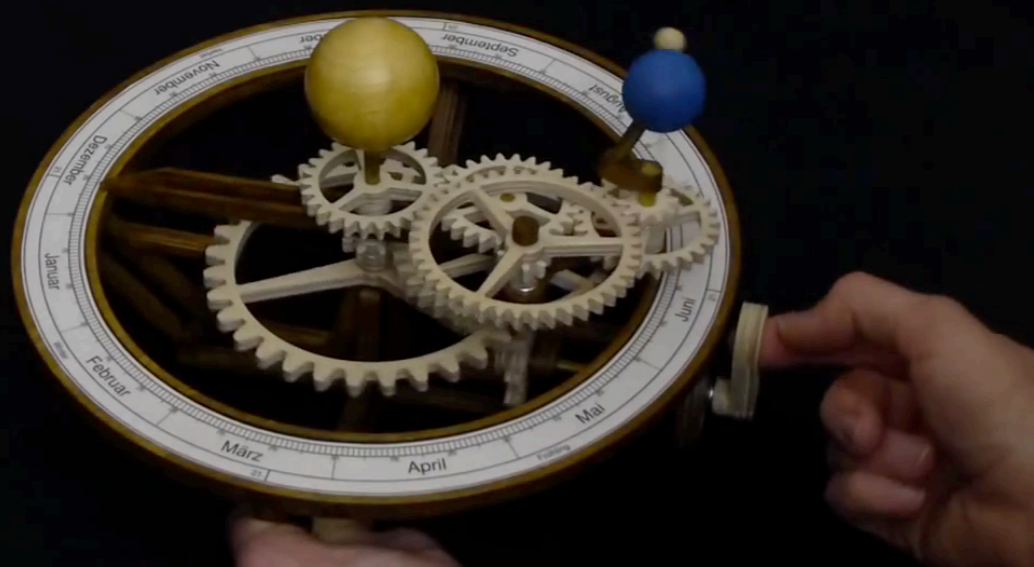
*“A tellurion made in 1766,
used by John Winthrop
to teach astronomy at Harvard.”*





Tellurion, Holz Mechanik

 WorldWide Telescope



Overview of PredictionX

